ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCV, No. 3 — PAPER — Thursday, July 21, 1932

New Thilmany Bag Plant Begins Operations

Building Completed Recently Gives Company 27,000 Sq. Ft. Operating Space—Houses Manufacturing, Printing and Warehouse Departments — Eight Machines Transferred From Waukegan Mill Already Running—Others Will Be Started Shortly, When Moved and Erected—Activities Now Centralized At Main Mill

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 18, 1932—Operations were begun last week in the new bag mill of the Thilmany Pulp and Paper Company, at Kaukauna, Wis. Eight of the machines transferred from the plant the company is abandoning at Waukegan, Ill., are running, and others will be started as soon as they are moved and erected. Approximately thirty employees have been taken on, and the number eventually will be increased to about sixty. Some of the experienced operators of the Waukegan plant have been retained to train Kaukauna employees, who will hold most of the positions.

The new building completed a short time ago to house the bag mill is 135 by 200 feet in size and gives the company 27,000 square feet of operating space. This unit houses the manufacturing, printing and warehouse departments of the bag department.

With the bag unit in operation, the centralization of all of the Thilmany company's manufacturing activities at the main mill is completed. The tissue division was recently moved to Kaukauna from Appleton, and this leaves the company without branch plants. It is expected the eight paper machines now numbered among the Thilmany facilities will consume practically the entire pulp output and enable the company to expand its converting departments when the marketing outlets improve.

Flood Control System Proposed

A question that never seems settled to paper mills and water power owners may come to an end through proposals of the war department for a flood control system of the Fox River Valley. The level of the control dam for Fox River power at Lake Winnebago has been restored to 21¼ inches above the crest on government order so as to improve the flowage as against a former level of 15 inches, but the riparians are everlastingly trying to force a lower level again.

Under the proposals of a flood control survey made by the government and made public by Major H. M. Trippe, Milwaukee, an arrangement of reservoirs is suggested at Post Lake and Leeman, on the Wolf River, and possibly one each on the Embarrass and Shiocton Rivers. The flood conditions on the Wolf River are almost entirely responsible for high water on the Fox River, and control of that stream and tributaries, it is assumed, will mean satisfactory regulation of the flow on the entire Fox River Valley system. A more comprehensive survey is planned covering the inter-related streams, after which action will be sought on the reservoirs to hold surplus water in check for seasons of low water.

Federal Forest Activities

Forest planting this spring in Wisconsin totalled 7,442,000 trees, according to figures compiled by the Wisconsin Conservation Commission. These were planted on 7,742 acres of land, principally by paper companies and the state. Of these, 75 per cent were pine and 25 per cent spruce.

An inspection of the tree nurseries and forestry tracts of the Nekoosa-Edwards Paper Company and the Consolidated Water Power and Paper Company will be made July 23 by members of forestry clubs of central Wisconsin. They will see millions of seedlings, and vast tracts of reforestation areas.

Federal forestry activities in Wisconsin will be reduced 25 to 33 per cent because of governmental economy, according to present estimates. The planting appropriation has not yet been received, but it is believed that enough funds will be available to complete the Fall program, consisting of 2,400 acres in the Moquah unit, 277 on the Flambeau and 265 on the Oneida, all of which are Wisconsin federal preserves. The curtailment will be mostly on the building of fire lanes and roads.

Further reforestation efforts by the state, county and local units will be suggested by Dr. Raphael Zon, director of the Lake States Experiment Station, St. Paul, Minn., in an address he is to make this week at a district meeting of the Wisconsin State Chamber of Commerce at Eau Claire, Wis. Dr. Zon will take as his subject, "A Land Policy for Northern Wisconsin." He is recognized as one of the country's leading forestry authorities, and has given intimate study to the rapidly dwindling supply of pulp wood and timber in Wisconsin.

News of the Industry

The Hoberg Paper and Fibre Company, Green Bay, Wis., has granted the use of "Evergreen" park to the city of Green Bay, to be made a part of its park and play-

(Continued on page 40)

Pennsylvania Paper Mills on Summer Schedule

Manufacturers In Vicinity of Philadelphia Generally Operating On Half-Time — Although Seasonal Specialties Are Fairly Active Local Distributors of Various Standard Grades of Paper Are Experiencing Usual Mid-Summer Lull

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 18, 1932.—With the usual summer lull prevailing, the Philadelphia paper industry is marking time, with the exception of customary activity in seasonal lines consumed in hot weather. There has been little activity among the distributors of the standard grades, which have continued to move in small lots of hand to mouth type. Manufacturers are on summer schedule, with none of the mills in the immediate vicinity on full time, most plants being on half week operations. Wholesalers of book papers and mill agents report a 25 per cent increase in sales of the current month over last month, indicating a mid-year turn in business of the large publishers and printers engaged chiefly on catalog work, large booklets and printed matter consumed in mail order traffic, and in direct mail advertising. Prices at this time, however, are lower on the cheaper grades of coated and other bulkier book papers used for this type of work.

Paper stock and drags were slightly more active following a much reduced price list issued on all grades in the preceding week. While there was a light spurt of buying by manufacturers, the most encouraging signs of mill interest were shown in increased inquiries for future deliveries. The grades that enter into production of low priced papers were most affected by the reductions of the preceding week, while better grades of paper stock, because of their scarcity, were only fractionally reduced, while some held firmly.

Dill & Collins Co. Issues List for Mailing

The Dill and Collins Company, manufacturers of fine papers, has compiled a list of papers that is timely in its appeal to meet the increased taxation and rise in postage. The firm has inscribed in this special list exceptionally durable papers to meet the usage of second and third class mail and saving on the first class postage costs. They include grades for booklets, catalogs, enclosures and house organs; broadsides; covers and envelope, and the exceptionally strong folder paper, the Dilfold Enamel.

Cellulose Products for Enterprise Paper Co.

With its entrance into an entirely new field of manufacture in the Philadelphia industry, the Enterprise Paper Company, 3rd and Callowhill streets, through its subsidiary, the Cellulose Paper and Converting Company, is branching into new lines of cellulose products. Under the title of the Cellulose Lustre Shred the firm is now making an attractive decorative product in many colors for standard stocking and in special colors to order. This new product is being demonstrated at the McCrory five and ten stores, and at the F and W Grand chain stores. They are converted into sheets, shredded for packing purpose, rolled on a wooden roll for use in the latest fad of making belts, hat bands, curtain ties, bracelets, napkin holders, picture frames and numerous other lines of merchandise for wearing and decorative usage. The Cellulose Lustre Shred is widening in demand for packing of merchandise, such as gifts, jewelry, notions and numerous other commodities, so that a lucrative field is being developed for this new comer to the paper lines. The new business is being developed under David Back, who is active in its management and of the firm.

National Waterproofing Co. Adds New Products

Additional products in the way of water proof wrappers and liners have been developed by the National Waterproofing Company, with Philadelphia offices, 1054 Drexel Building, and plant in Camden, N. J., which are entirely new in types. Among the newest additions are the Black and Tan water proof wrapper and liner which gives absolute protection against water and moisture, and of the 50 lb. Kraft Duplexed with saturated 50 lb. kraft in standard sizes of 2,500 square feet to the roll or in squares of 100 square feet. There are two shades of tan in this line. Special sizes and sheets are made to order.

L. Resnick & Sons Add New Lines

L. Resnick & Sons, 131 Dock street, has added several new lines to its produce and food trade specialties. Among the newer lines added are berry boxes, paper tomato wraps, insecticide papers for coverings for foods and fruits, durable bags for heavy fruit and food packing, and a line of wooden and paper specialties to meet the needs of the trade in which it specializes. The firm, which has been established for a score or more years, recently removed to larger quarters in the five story building at the present address. The business is now conducted by the sons of the founder, Louis Resnick, retired, Charles and Joseph Resnick, and is removed to the heart of the wholesale food and produce section of the city from its old quarters at 2nd and Pine streets.

Continental Paper Mills on Five Day Week

Though the paper board mills of the country are being adjusted to the needs of the current business situation, one of the largest of these plants is being operated on a five day week schedule with Saturday a holiday for the workers throughout the summer season. Allen G. Center, Philadelphia representative of the Continental Paper Company, which now conducts its own sales offices in the Terminal Commerce Building, at Broad and Race streets, has been kept fairly well occupied meeting the demands of box makers and distributors for Continental products through the Quaker City offices opened here to meet growth of business in this section.

Whiting Paper Co. Ready with Gift Line

The Whiting Paper Company, 619 Chestnut street, is now showing holiday lines of papeteries adapted for gift purposes and for the Christmas season. There are seventy new designs in gift papeteries. Several of these are novel in borders and finishes, as well as colors and boxing. The line is being shown to the trade under the Philadelphia manager, D. F. Coots.

Hummel Ross Increases Bleached Specialties

The lines of bleached specialties which have recently been added to the products manufactured by the Hummel Ross Fibre Corporation, of Hopewell, Va. and sold through the Philadelphia offices in the Lewis Tower Building, have shown a well rounded increase among the distributors in this territory. They include a full line of

tag stocks, boards, post card stocks, printers Manila and canister stocks. These products are strictly 100 per cent bleached sulphate of exceptionally fine finish and durability and contain no ground wood base, in their manufacture.

Hooper Paper & Twine Co. Distributes Tags

There has been added to the expanded lines of paper distributed in volume by the Hooper Paper and Twine Company, 105 Church street, the complete stocks of tags made by the Denney Tag Company, of Westchester, Pa. The Hooper company has become the Philadelphita distributor for the Denney Tags and sent an announcement to the trade informing it that a complete stock of these blank tags will be kept in the warehouse at the Church street address, ready for immediate delivery so that orders may be handled with despatch. The Denney Tag Company has been manufacturing paper tags since 1887. The Hooper company will represent the manufacturers in Philadelphia and Pennsylvania and Western New Jersey.

Thomas M. Royal in Europe

Thomas M. Royal, head of the Thomas M. Royal & Co., 7th and Grange streets, accompanied by Mrs. Royal, is spending the summer months touring Europe. After a trip through France they will continue to tour the Continent, returning to Philadelphia the latter part of August.

Whiting Water Power Case Settled

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 15, 1932.—The long outstanding dispute between the Holyoke Water Power Company and Whiting & Co., Inc., over how the use of certain water power rights should be construed has been settled to the satisfaction of both parties and the two paper machines that have been closed down since June 10 on account, in part at least, of the disagreement will start operations as soon as possible.

The closing of the mill came after prolonged negotiations between the Whitings and the Holyoke Water Power Company had failed to bring about an agreement. It came as a shock to the city, for the mill had been operating as well as any in its class. Since the first of the year it has averaged four days a week.

While nothing was made public, over the details of the differences and the terms of the settlement, it is known that the mooted questions over the cost of the canal water for manufacturing purposes and that of the electricity were the principal points. Whiting & Co. Inc. will purchase electric power from the Holyoke Water Power Company, President Robert E. Barrett said. Heretofore it has used electricity generated at the municipal gas and electric plant.

This settlement brings to a close a dispute which at one time threatened the continuance of an important Holyoke industry. Whiting & Co. Inc., which operates the No. 3 Whiting Mill, was organized in 1927 to take over the Layman Mills property. Those huge mill buildings were idle and the fear was that they would remain unused until former-Secretary of Commerce William F. Whiting bought them, organized a new concern and planned a huge writing paper development there. Two machines were set up and tentative plans for another unit to be added were being considered, when litigation was started over certain power rights.

Further development for paper manufacturing was stopped when the disputes were brought to court. Now the definite status of the company with the power rights that were originally intended for the textile business has been determined.

Salisbury Paper Mill to Resume

After being idle for about four years, except for a period of three months the early part of last year, the Salisbury Mills paper plant will shortly be in full operation says the *News* of Newburgh, N. Y.

The mill is now in partial operation. The Frost White Paper Mills, Inc., present owners, is operating one machine and employing 12 or 15 men.

The plant is being electrified and when it is put into full operation in two months or so, it is expected 50 or 60 will be employed.

The Park Tissue Mills of Long Island City expects to move its plant up here. This company, which converts toilet tissue, expects to have its converting machinery installed in the Salisbury Mills plant in about two months.

Toilet tissue is now the only product of the Frost White Paper Mills, but it is possible that later on other paper products may be manufactured.

The Park Tissue Company will operate the converting plant in Salisbury Mills and the Frost White Paper Company handle the paper manufacturing, with between 50 and 60 being employed altogether. The Park Tissue and the Frost White Paper Mills are two different companies, but the directors of the Park Tissue are directors of the Frost White Paper Mills.

The present plant is operated by water power, but the whole plant is to be electrified so it will be able to run continuously. Former owners have been faced with the difficulty of having to close the mills through lack of water during the dry season.

The Frost White Paper Mills expect to operate the year around. They will have outlets for their product through the Park Tissue Mills and will not have to worry about distribution. The Park Tissue Mills are a large organization, in existence for ten years, with a large sales organization.

Frank Peterson of Salisbury Mills, formerly of New York, is superintendent of the plant.

The officers of the Frost White Paper Mills are as follows: Samuel Wishnick of New York, president (secretary-treasurer of the Park Tissue Mills); Morris Arzt, New York, treasurer (president of the Park Tissue Mills); David Wishnick, New York City, secretary of the Frost White Paper Mills (not connected with the Park Tissue Company), and Harry B. Schoener of New York, attorney.

May Reduce Pulp Rates to Middletown

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, July 18, 1932—Information received here from Washington the latter part of last week was to the effect that a reduction in freight rates on wood pulp from Toledo, Ohio, to Middletown, the Paper City, to prevent manufacturers at that point from switching their traffic to motor trucks, was proposed by the Central Freight Association, on behalf of railroads participating in the haul.

The establishment of a rate of 12 cents per hundred pounds is asked, it is understood.

It is said that a considerable traffic in wood pulp already has been moved by truck, and more will go the same way unless the rate reduction is put into effect, the railroad brief claims.

Large shipments of the pulpwood are now at the Toledo wharfs ready for movement to Middletown, and additional shipments are scheduled to arrive at Toledo in the immediate future, the railroad brief says.

Fraser Companies Reorganization Plan Opposed

Protective Committee Formed by Secured Note Holders Rounded Out by Charles Laurendeau, K. C., Director of Banque Canadienne Nationale—Senator J. M. Wilson Maintains Property Should Be Placed in Hands of Temporary Receiver

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 18, 1932.—At a meeting, during the week, of the Protective Committee formed by secured note holders of Frazer Companies, Ltd., further plans were made to oppose the reorganization scheme submitted by that company following default on its bond interest. The committee was rounded out by the addition of Charles Laurendeau, V. C., a director of the Banque Canadienne Nationale.

Secured note holders are asked to accept new 6 per cent first mortgage bonds of the Restigouche Company par for par in exchange for their present holdings. At the June 20 meeting there were represented about $1,404,000 of notes of a total of $3,000,000. The protective committee must find 50 per cent of the total represented at the next meeting if it is to be successful.

Senator J. M. Wilson, who is a member of the Protective Committee, maintains that the property should be placed in the hands of a temporary receiver until such time as an independent audit can be made of the company's position.

Nashwaak Plant Being Reconditioned

The plant of the Nashwaak Pulp and Paper Company, situated at Saint John, N. B., is now being reconditioned, after having been closed since 1930. According to representatives of the new owners, the Port Royal Pulp and Paper Company, of Quebec, the making of bleached sulphite will be carried on upon the strength of their great taith in the Saint John River Valley and the port of Saint John. Dependent on market conditions, the hope is to resume pulp making in September. Waste from the mill at Van Buren will be used and also pulpwood from the Saint John River Valley. The Port Royal Pulp and Paper Company, Ltd., has been organized under a Dominion charter with head office at Quebec. John Champoux, Quebec City, eighty year old lumberman, is president; H. F. Smith, Montreal, formerly of Union Bag and Paper Company, vice-president, and T. A. Gilbert, of St. George de Beauce, P. Q., secretary-treasurer. Mr. Lacroix is a member of the directorate and with his brothers owns the Madawaska Corporation, at Carleton, P. Q., and the Gaspe coast, and the Madawaska Company, which operates at Van Buren, Me.

It is also stated that when operations are resumed at the local plant the sales organization of the company, as well as that of the Madawaska Corporation, Ltd., and the Madawaska Company, will be centralized at Saint John, N. B. also. They are at present at Van Buren, Me.

New Taxes Close Paper Mills

Because of the Provincial Government's new tax on fuel oil, the British Columbia Pulp and Paper Company has decided to shut down its mill at Port Alice, Vancouver Island; the company's mill at Woodfibre was closed down several weeks ago, and not a single production unit is now in operation. Lawrence Killam, president, expresses hope that early in the fall it will be found possible to resume operations, adding:—

"We waited as long as we could before shutting down. In addition to a general slump in business we suffered heavily from fluctuations in the exchange rate with Japan and other transpacific countries. The new oil tax, amounting to half a cent per gallon, accentuated a situation already serious. We normally require 500 barrels of fuel oil, and the tax would have increased our operation cost more than $2,000."

Powell River Company and Pacific Mills, Ltd., British Columbia's news print producers, are also feeling the effect of the tax, but they have been able to reduce their consumption of oil by a substantial margin in recent years through the substitution of "hogged" fuel obtained from sawmills in Burrard Inlet.

Pacific Mills Report

Pacific Mills, Ltd., operating pulp and paper mills at Ocean Falls and a paper converting plant at Vancouver, report net profit after bond interest, depreciation and taxes for the year ended April 30th, 1932, at $215,904. After payment of $119,934 in preferred dividends there remained a surplus of $95,970 which brought total earned surplus to $6,282,968. For the twelve months ended April 30th, 1931, net profit was $413,515 and there was a balance after preferred dividends for that period of $293,581. Bond interest for the year was covered nearly 2½ times while preferred dividends were covered 1.8 times.

In his statement to shareholders, A. B. Martin, president, states: "We have come through another trying year of world wide depression adversely affecting all lines of business activity, and the paper industry has been no exception. It is gratifying to know, however, that notwithstanding these conditions, resulting in substantial declines of volume and prices, the position of your company, as disclosed in the accounts, has been maintained on a sound basis. Unfortunately, 1932 started in at a lower business level than 1931 with further substantial declines of volume and prices, and the outlook for earnings in the immediate future is not encouraging."

Bertrand Hopper Files Appeal

DAYTON, Ohio, July 18, 1932—An appeal from the decree of Judge Fred M. Raymond, in the United States District Court at Cincinnati, was filed the past week by Bertrand Hopper, Kalamazoo, Mich., in the United States Circuit Court of Appeals, in the action filed against him by the Western Tablet and Stationery Company of Dayton. Judge Raymond's decision upheld the tablet company's contentions on an employment contract, which provided that Hopper should not engage in competitive selling with the tablet firm before February 9, 1937.

It was charged that Hopper had violated the terms of his contract.

Norwegian Pulp for May

WASHINGTON, D. C., July 20, 1932—Norwegian wood pulp mills turned out during the month of May, 12,077 metric tons of bleached sulphite, 9,588 tons of unbleached sulphite, 1,497 tons of sulphate, and 33,279 tons of groundwood. During the corresponding month of last year operations at the mills were interrupted by labor troubles, and except for 14,089 tons of groundwood production was negligible.

Chicago Paper Market Practically Unchanged

Quotations Continue Steady and Liquidation Has Apparently Approached Its Termination—Midsummer Dullness In Trading Relieved Occasionally by Spurts In Buying—More Confidence Expressed In Kraft Wrapping Paper Division

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 16, 1932—A midsummer dullness not, however, without an occasional spurt in the buying of some lines, has settled on the Chicago paper market. Prices remain virtually unchanged from week to week and liquidation seems to have finally approached its termination. Paper merchants here, taking an inventory of the situation, see much to be hopeful about. They point to a strengthening in all commodity prices as a sign of betterment. They illustrate their belief that prices have gone about as low as they will go by the lack of further price cutting of any note. And they look forward to the future with some confidence because of the fact that even a slight improvement in business will find no reserve inventories and will result in immediate demand for stock.

The kraft market presents about the same appearance week after week. Price stabilization near recent lows gives buyers more confidence in making committments. Collections are slow and the jobbing trade here is working diligently to overcome this handicap and to clean up the competitive situation. Books and covers are in very little demand. Some papers used for Fall catalog work are feeling the results of this demand. Fine papers continue at a fair pace with the summer slackness not quite so noticeable, comparatively, as in other years due, first of all, to spotty demand throughout the year and, secondly, to the quickness with which an appreciable order registers on the general business index. News prints and ground woods are very dull, according to reports, with mills curtailing their operations sharply. Boards are slow. Specialties, too, are reported to be marking time. The waste paper market is devoid of interest, with collectors finding it almost impossible to locate buyers.

Illinois Waterway Ready

The paper industry, particularly the kraft and news print sources, has been very much interested in the development of the Illinois Waterway. A new lake port comprising some nineteen cities with a population of 228,000 will be thrown open to commerce—and, of course, to the paper industry—with the completion of the Illinois Waterway which is expected to be ready for navigation in October according to present plans. The Illinois stretch has been termed the heretofore "missing link" in the lakes-to-gulf water artery. The new lake port will equal the size of some of the important old ports with great tonnages both on the lakes and the seaboard.

Vessels are even now coming to Chicago from New York and Philadelphia and occasionally from Europe. In Peoria some firms are getting raw materials for paper manufacture by waterway and that city is reporting a growing volume of cargoes at its river terminal. Midwest manufacturers are of the belief that the opening of the waterway may help to relieve the depression by easing the constriction which the Panama Canal has clamped on the Middle West region to the advantage of the Atlantic and Pacific coasts.

The southern kraft markets; the Canadian news print sources and even the forest products of Sweden and other European countries are being brought very close to the great cities of the Middle West with the complete navigation of the lakes-to-gulf artery. Already Chicago newspapers receive news print via waterway; great merchandising houses are getting paper for catalog purposes via waterway and the kraft converters on the line are beginning to receive shipments of this paper over the water route.

Paper Merchants Hold Outing

Sixty-five members and guests of the Chicago Paper Association enjoyed an outing at the beautiful Glen Oaks Country Club on Wednesday, July 13. The event brought many mill executives to Chicago and gave them an opportunity to learn a lot about the golfing proclivities of those to whom they sell. Under the direction of Leo Altholz, the luncheon, competitive events and dinner went along smoothly. No speeches graced the evening program but several of the mill executives present were asked to give impromptu talks—a request to which they responded quite graciously. Included in the list of many prize winners, all of whom received their awards at the evening session, were: Arthur Bernhart, winner of a golf bag; Leo Altholz, who drew a putter for his achievements at the blind bogey, and the following: first low gross, Lawrence O'Leary, a dozen golf balls; second low gross, P. A. Lee, merchandise certificate; second low net, Warren Moore, merchandise certificate; first low putts, William Piper, dozen balls; second low putts, M. Holden, merchandise; second blind bogey, Peter O'Leary, merchandise; third blind bogey, Ed Keeler, putter; first low gross, William Roth, winning the Hoberg Paper and Fibre trophy; first consolation prize, Norman Stone, book of instructions. Jim Danehy evidently won the sweepstakes prize when he copped the famous "Poker Prize," a dozen golf balls.

Paper Salesmen to Hold Golf Outing

The Salesmen's Association of the Paper Industry, Middle West Division, holds its July golf pow-wow next Friday, July 22, at the Westmoreland Country Club. Courtney Reeves, Allied Paper Company, chairman of the golf committee, looks for an unusually large attendance. Luncheon will be served at noon; competitive play for the many prizes, will begin early in the afternoon and a dinner and impromptu program in the evening will end the day.

Import Ruling on News Print

WASHINGTON, D. C., July 20, 1932.—The Customs Bureau, Treasury Department has sent a communication to Elisha Hanson, Washington representative of the American Newspaper Publishers Association upholding a former decision that imported standard newspaper paper of 16 inches will be admitted free of duty and nothing less than that.

A decision to this effect was handed down sometime ago and this simply upholds the former ruling. However, the Bureau states that it will be glad to receive further evidence and Mr. Hanson has stated that he intends to file further evidence. He is asking for 15 inch paper free of duty.

Dryden Paper Co.'s Report Fairly Satisfactory

Earnings From Operations During Past Fiscal Year Totalled $77,940 — Profits Understood Sufficient to Cover Bond Interest Requirements to Date—Declining Demand and Low Prices Restricted Plant Activity and Earnings

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 18, 1932—Though earnings of Dryden Paper Company, with mill at Dryden, Ont., have shown no tendency to improve during the current vear, it is understood that profits are sufficient to cover bond interest requirements to date. The company has outstanding $1,500,000 of six per cent first mortgage bonds.

In the fiscal year ended September 30, 1931, earnings from operations totalled $77,940 and after addition of other revenue was $95,311, compared with interest of $90,000, payment of which left a net profit, before depreciation or taxes, of $5,311. In the previous year $100,000 had been provided for depreciation and depletion.

Dryden Paper Company suffers from the same conditions which affect all operators in the pulp and paper industry. The declining demand and low prices restrict plant activity and earnings. In the kraft industry overproduction exists, bringing about a situation similar to that prevailing in the news print industry.

Even operations of the Bates Valve Bag Company, which manufactures cement bags in the Dryden plant, have been affected. This company caters to the cement trade, and lower constructional activity, together with reduced demand for cement, has curtailed output of bags from the Dryden unit.

Dryden Paper Company sells most of its kraft output in Western Canada. Expectation of a large crop in the Prairie Provinces, with the possibility of improved business conditions, lend some encouragement to the outlook of the paper company. The balance sheet at the end of the last fiscal year showed a satisfactory liquid position.

Ask Right to Export Cordwood for Pulp

With the support and endorsation of fourteen Boards of Trade and Farmers' Institutes of the North, Prince Rupert Chamber of Commerce has requested the British Columbia Provincial Government to legalize export of spruce and hemlock cordwood for pulp. The letter forwarded to Victoria states that revenue to the Government for royalties and stumpage would total a minimum of $600 monthly.

Sponsors of the petition claim that, unless the timber now available for pulpwood is used soon, it will commence to rot and deprive large numbers of workers from earning a livelihood. There is little probability of a pulp mill being constructed on the northern coast for some time, they state. The petition calls on the Government to permit cordwood being classified as a manufactured product so that it may be exported and stipulates that the stumpage and royalties should not exceed 60 cents per cord for ten years.

In the preamble it is stated that manufacturers in the United States have offered a satisfactory price for the cordwood. They are willing to contract for 10,000 or more cords a month for the first year provided they are assured that dues shall not be increased within a reasonable period.

Pulpwood Stocks Are Depleted

It will be pointed out at the Empire Economic Conference which meets at Ottawa at the end of July, that for the past two winters the cut by pulp and paper companies has been light. The general depression found the companies well provided with pulpwood. The custom has been to keep supplies of wood for fifteen months ahead.

The lessened demand and the fact that supplies were well ahead of the usual supply, resulted in two years of lesser cut, with the result that some companies will be in need of pulpwood by next December, and, generally speaking, it is estimated on good authority that, instead of a fifteen-month supply existing, the supply now runs from ten to twelve months. Naturally what is to be done by the companies next winter will, in a large measure, depend upon financing, but it is presumed that this financing problem with the banks will be worked out and that wood piles will be maintained. A much larger cut of wood is predicted for next season. There have been heavy burnings of valuable stands of timber this summer, and, as was done after the big fires of 1923, the intention is that there shall be salvage work done this winter. The Government has encouraged companies to do this salvage work by reducing the stumpage dues generally by fifty per cent on wood cut in burned out areas and in this way have the results from forest fires been diminished. The loss attributable to forest fires this year will not by any means be as heavy as lately believed.

Notes and Jottings of the Trade

Norman E. Wainwright, president of the Don Valley Paper Mills, Toronto, is spending a vacation in the Maritime Provinces.

W. G. H. Logie, who for some years was the Ontario representative of the Canadian Paper Board Company, with headquarters at Toronto, has severed his connection with that company and is now acting in a similar capacity for the Gerald T. Shipman Company, box board sales agents for Beaver Board Fibre Company, Ltd., and the Bathurst Power and Paper Company, Ltd. His office is at 32 Front street West, Toronto.

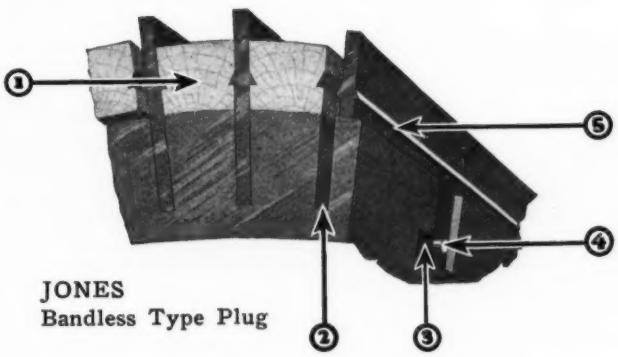
Employees and executives of the Fielder Paper Box Company, and A. E. Long & Co., paper box manufacturers, Toronto, enjoyed their annual outings at Lakeside Park, Dalhousie, on June 5th, and following an enjoyable sail across Lake Ontario, staged programs of sports and athletic events for which prizes were awarded to the winners of the various events, including a prize to the A. E. Lond Company soft ball team which won the match with the Fielder team.

Plans are being prepared for addition to and reconstruction of the Hamilton, Ont., waste paper plant of E. Pullan, Ltd., which was recently badly gutted by fire.

Premier George S. Henry was one of a party inspecting the Abitibi Canyon development on July 14. The party was on its way to Moonsonee for the ceremonies connected with the extension of the James Bay extension of the T. and N. O. Railway. Members of the group were impressed by the magnitude of the project commenced and partially completed by the Ontario Power Service Corporation and which is about to be further financed by the Ontario Hydro Power commission.

Arthur Hobson, of the Toronto office of the Howard Smith Paper Mills, is spending his vacation with his family in the Kawartha Lake region.

FOR GREATER ECONOMY!



JONES
Bandless Type Plug

1 Straight grained, air seasoned Oak fillers—easy for chipping. Maximum life to meet severe service.

2 Deep milled slots—giving lateral support for the bar its entire length—maximum rigidity.

3 Back Groove to receive pin. Bars need not be driven entire length to be removed or replaced.

4 Pin Bar Lock—five pins in each bar.

5 Bead to lock woods in place—bead interlocks with woods to prevent them raising.

REFILLINGS FURNISHED AT SAME PRICE AS THE BANDED TYPE

Shell Filling—Nested for Shipment

IF you are planning important economies —NOW is the time to replace those old, worn fillings for enduringly dependable JONES Fillings. But in replacing your obsolete fillings, do not be satisfied with any low initial cost. Large savings are not affected by penny-wise buying. They come from year-in and year-out operating economies and elimination of waste. These are the real savings that go on and on long after the first cost of JONES Fillings is paid back. Since your maintenance dollar must be watched now more than ever before, you must beware the after costs of Jordan operation.

When you specify JONES Fillings—and their prices are comparable with ordinary fillings — you can be assured of dependable performance under all conditions because of their simplified design, sturdy construction, precision-build, utmost ease in filling, and above all because of their *long established service record* unequalled by any other filling.

We carry the most complete line of fillings offered by any manufacturer—a filling to meet any known condition or requirement. They can be furnished in carbon steel, heat treated steel, stainless iron, bronze, nickel steel, monel metal, carborundum, basalt lava . . . Carborundum and basalt lava available in any grooving desired . . . metal can be furnished to any hardness as specified by purchaser. Plug may be of Banded or Bandless type.

Descriptive, illustrated Bulletin mailed upon request.

Jones

E. D. JONES & SONS COMPANY-PITTSFIELD, MASS.
Builders of High-Grade Machinery for Paper Mills

Facts on Which to Base Credits in the Writing Paper Industry*

By Morris C. Dobrow[1]

The first paper mill in America was established in Pennsylvania in 1688 by William Rittenhouse, a native of Germany, who was assisted in his undertaking by William Bradford, the first printer in Pennsylvania and New York.

Early paper production in the United States was a crude hand process but the business flourished soon after its inception. Since the American Revolutionary War, the industry has continued to progress. It has always been conducted on sound, conservative lines, and most of the companies which were organized between that period and the Civil War have continued in business to the present time.

Grows Steadily

The industry continued to grow with the country, and production has more than matched the rise in population. Increased educational and cultural opportunities, as well as the increased complexities of modern science and business, tended to raise the per capita consumption of writing papers. As recently as the beginning of the 20th century, writing paper consumption in the United States was about three pounds per capita per year. As the present time it is equal to nine pounds for each man, woman and child in the country.

In the golden decade—1920 to 1930—a large expansion program got under way in the paper industry, as it did in many other lines. The productive capacity of the paper industry as a whole increased 62 per cent during this period. In the writing paper branch of the industry—conducted largely by older companies—production was on a more conservative basis, but nevertheless it was beyond the actual needs of the country.

In 1925, for every dollar invested in plants and machinery, there was $1.50 in writing paper sales. In 1929, a highly satisfactory year, this ratio had shrunk to $1.35, and in 1931, it was naturally down still further to 88 cents.

Investment in plant has undoubtedly gone ahead faster than sales. While the expansion in the writing paper industry was on a more conservative basis than in other lines of paper, it was nevertheless greater than sales warranted. The industry is in a position to take care of normal consumptive requirements which may be expected in the next five years.

On Sound Basis

Although plant investment continued to grow each year from 1925 to 1930, there was a slight decline in 1931. The industry, which is largely on a sound accounting basis took the usual amount of depreciation in 1931, regardless of conditions, and in one or two instances timberlands and other properties were written down to market value. In a few unusual cases, fixed assets were written up to replacement value during the boon years. Most mills, however, carried their fixed assets on an ultra-conservative basis so that the values of writing paper mills are usually sound. Of course, if the deflation should continue, industry in general may have to face the problem of writing down fixed assets beyond the usual rate of depreciation.

In 1927 and 1928 the industry achieved an unusually high ratio of current assets to current liabilities, which was about 5.75 to 1. At the end of 1929 this dropped to 5 to 1, and at the end of 1930, it was slightly over 4 to 1. It is gratifying to note that the liquidation of 1931 improved the ratio to about 5 to 1.

Current Assets Good

Any ratio of current assets to current liabilities above 2.5 to 1 is considered satisfactory, especially in these days, so that the 5 to 1 ratio for the writing paper industry can be considered very satisfactory.

Of course, a comfortable current position is a necessary reserve in the period through which we are passing, and will also be important when the tide turns and investments in inventories will have to be higher than they are at present. All industries are suffering today, but the degree of distress from one industry to another varies. Adequate working capital is an essential for stability and a minimum of distress and this the writing paper industry generally seems to have.

A high ratio of current assets to current liabilities has made it possible to maintain a comparatively stable market, which has been an important factor in avoiding some of the deflation losses.

In 1925 the ratio of sales to total inventories was 3.3. Sales turnover has improved in recent years, and in 1929 it was 4.4, which was highly satisfactory for this type of manufacturing.

Inventory Turnover Improves

In 1930 the ratio of sales to inventory naturally declined quite sharply to 3.47 because of the decline in sales without a corresponding decline in the finished stocks carried at the mills.

While sales declined still further in 1931, inventories of finished paper and raw materials declined to a larger extent, thereby slightly improving the rate of inventory turnover. It might be added that inventories of finished goods as well as raw materials in this industry are nearly always of sound value. This can also be said of accounts receivable. Credit losses have always been negligible.

In 1927 when money was very cheap and bonds readily salable, there was a fairly large increase in fixed liabilities. Since then there has been a slow but steady decline in the amount of mortgage debt, despite the increase in fixed assets during the period.

Healthy Condition

For the industry as a whole, the situation is in a fairly healthy condition. For some individual companies, however, who are carrying mortgage debt, it becomes increasingly difficult in a period of deflation with little or no profits.

American business is groaning under the sad realization that interest on fixed liabilities and taxes must be paid even though industry is run at a loss. The companies who reduced their fixed liabilities or eliminated them entirely during the prosperous period, have been best able to withstand the series of deflationary shocks. Fortunately, this is true for a large majority of writing paper mills.

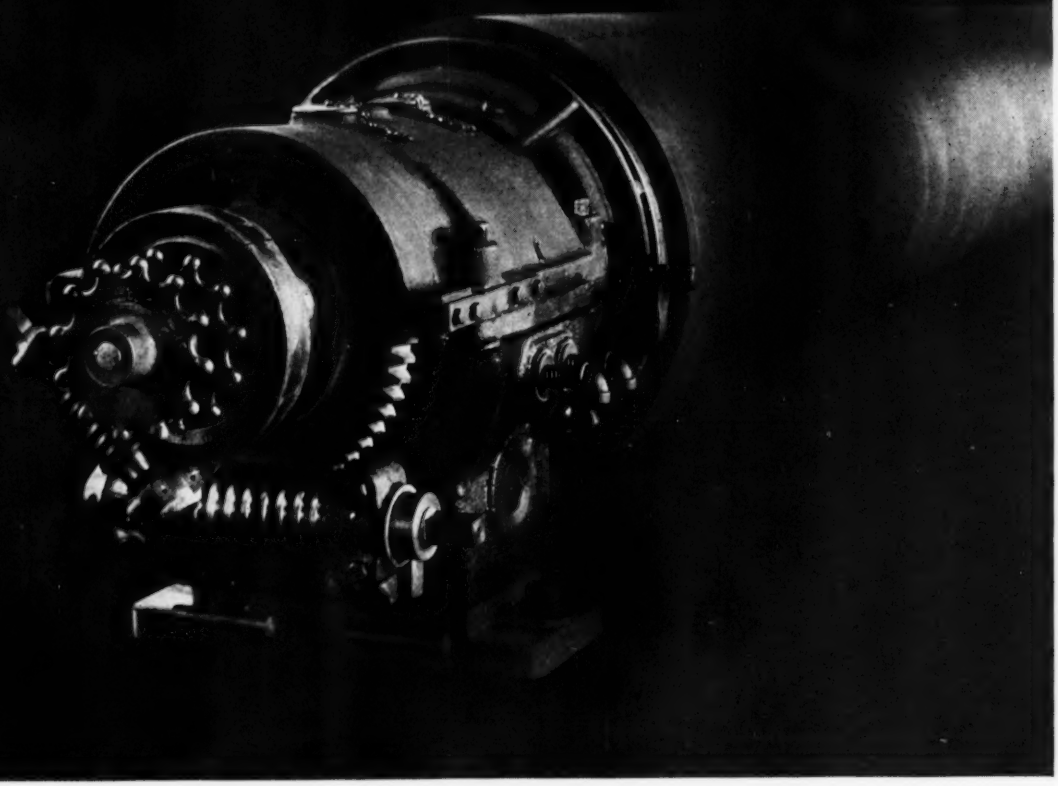
In 1927 the distribution of the balance sheet was 41 per

* This is one of a series of credit studies of industries whose credits (both long and short-term) are rather widely distributed. The Bankers Monthly, July, 1932.

[1] Asst. Sec., Writing Paper Manufacturers Association, Springfield, Mass.

DOWNINGTOWN

NO FEAR!



cent for current assets, and 58 per cent for fixed assets and one per cent for deferred charges. The increased amount put into plants and buildings has changed the distribution so that at the end of 1931, current assets were represented by 33 per cent of the total, fixed assets by 66 per cent and deferred charges by 1 per cent.

Liabilities Decline

On the liability side, the percentage of total liabilities has shown a decline in the last five years. They were $25.50 out of every $100 in 1927, and in 1931 they were only $23.10 out of every $100. Stockholders' equity in the writing paper industry is now 77 per cent. This is larger than the percentage in many other branches of the paper industry where mortgage debt is higher.

A recent analysis of the 1928 tax returns of the entire paper industry showed that the profit-making corporations had an equity of 75 per cent in their business whereas all the corporations showing losses had an equity of only 46 per cent in their business.

Low Ratio Expected

In 1925 the ratio of sales to net worth was slightly under 1. In 1927 it had advanced somewhat because of sales expansion without a corresponding increase in investment. Since that time, the amount invested in the business has increased faster than sales. Of course, in 1930 and 1931, during the depressed conditions, a low ratio of sales to net worth was to be expected.

This ratio is important as it shows that the net worth or the capital invested in the industry is turned over but once a year, in a normal year. In 1931 there were only $75 of sales for every $100 invested in the business.

It shows that a high margin of profit is essential in order to give an adequate return on capital. In merchandising business where the ratio of sale to net worth is 3 to 1 or 4 to 1, a profit of 4 per cent on sales will give a profit of 12 per cent to 16 per cent on net worth, but in writing paper manufacturing, a profit of 4 per cent on sales gives a profit of only 4 per cent in a year of normal volume, so that the profit which would be satisfactory in a merchandising business would be entirely inadequate for writing paper manufacture.

The 1931 financial figures of the writing paper industry clearly indicate the continuation of the depression, but they show a determined tenacity to keep from being submerged by the severe deflation of the period.

The first half of last year resulted in a definite but modest profit on operations. For the second half of the year results were in the red for the first time in ten years. This resulted from the severely diminished volume of business and the necessity for absorbing a large overhead and high depreciation charges.

The capacity of the industry is too large. If the deflation should continue, industry generally may later face the problem of writing down the book value of fixed assets or eliminating obsolete equipment. Fortunately, a good part of the expansion in productive facilities in the writing paper industry in recent years was not accompanied by increased mortgage debt so that the financial burden of the industry as a whole is not a serious one. The working capital of the industry is adequate and facilitates reasonable stable market conditions.

Efficiency High

The mills now have their efficiency and costs in such shape that an 80 per cent volume of business, even with some increase in the cost of raw materials, would probably bring them as good a return as they received in 1929.

When we shall have a return of 80 per cent business it is difficult to say, but it is reasonable to assume that such a volume will come back sometime. In the first place, every previous depression has been followed by a return of not only 80 per cent but 100 per cent normal business. Furthermore, it does not seem reasonable that the American people will long continue on diminished consumption and diminished production. Somehow the two will be brought together so that the men who are eager to produce and consume will make full use of the efficient productive facilities that have been developed since the beginning of the century.

Indianapolis Market Inactive

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., July 18, 1932—Extremely hot weather last week caused what little business there had been to drag and not much is expected now until the beginning of the fall season, which should start next month as the dealers get ready for the opening of the school season. The foregoing applies, of course, to most of the fine paper list.

The summer specialties now are going in good shape. Torrid days and nights have driven thousands to the outdoors and napkins, plates, cups and all such items are moving more rapidly than they have thus far this year. The container market also is being helped and is active as compared with the other items in the paper list.

Just now the eyes of most of the trade are trained on the special legislature, which convened twelve days ago for the express purpose of lowering taxation. Since 1913 state expenditures have increased 700 per cent and in view of all other conditions, this session was called to lower state taxes. In view of past experiences, this seems an incredible accomplishment, but the trade is hoping. It has come to the point that taxes in Indiana on mills, stocks, both raw and finished, stocks in the paper jobbing houses and their real estate taxes, are almost prohibitive. Any reduction will be gratefully received, according to the local trade. Of course, there is the little matter of a state income tax which is being pressed now for passage, but judging from expressions from most of the trade, this will not bother much for a year or so.

Most of the board plants in this territory are working about half time and report demand indifferent. Prices are being fairly well held. The container plants and those making bread wrappers seem to be busiest. Jobbers in building papers report a really better demand than they had expected in view of conditions. The volume is not nearly what it should be, however.

R. M. Snell Appointed

Ralph M. Snell, vice president of the Hurlbut Paper Company, South Lee, Massachusetts, has been appointed chairman of the newly formed History and Biography Committee of the Technical Association of the Pulp and Paper Industry.

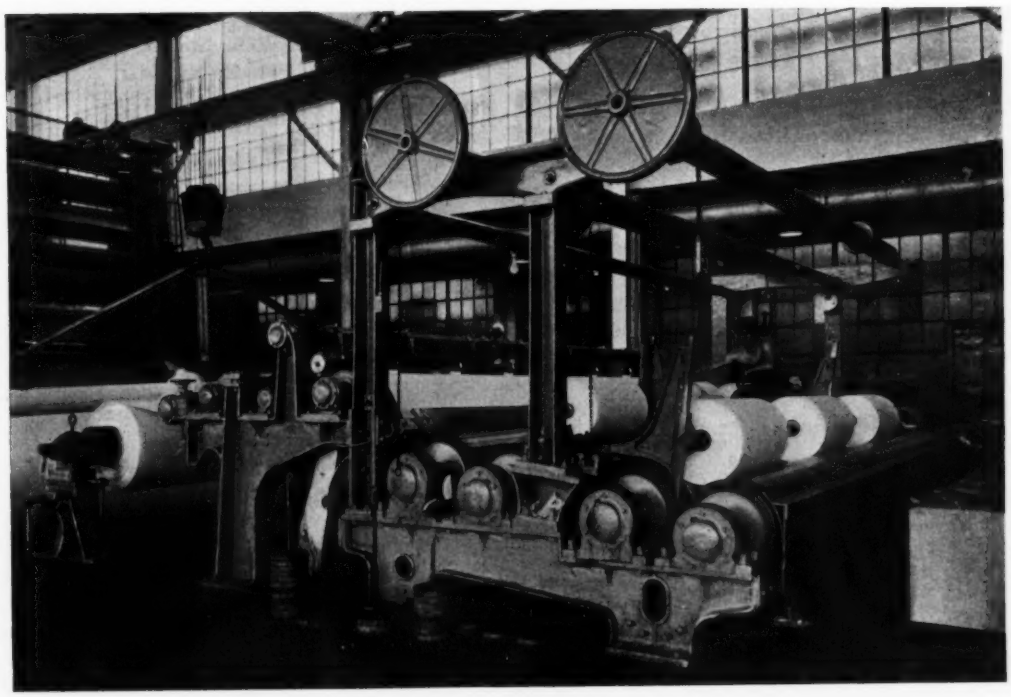
This committee has been assigned to the Management Division, of which William R. Maull, vice president of Dill & Collins Company, is general chairman.

The committee will have for its principal objective, the collection of data relating to the history and development of the pulp and paper industry.

Mr. Snell's excellent work as editor of *Superior Facts*, house organ of the Paper Makers Chemical Company, is well known, and it is expected that the committee will be made up of members of TAPPI who were intimately acquainted with or who have accurate knowledge of the origin of the various processes. An announcement of the committee personnel will be made later.

The MOORE & WHITE Co.
PHILADELPHIA, PA.
N. PHILA. STA. PENNA. R.R.
PAPER MILL MACHINERY

HIGH SPEED FOUR-DRUM WINDER & SLITTER



MOORE & WHITE HIGH SPEED all ball bearing equipped four-drum winder & slitter with quick removable ***bottom*** slitter blades in mill of Champion Fibre Co., Canton, N. C.—236" width of drums operating at a paper speed of 2100 feet per minute.

DESCRIPTIVE CATALOGUE ⟍
⟍ UPON REQUEST

PAPER TRADE JOURNAL
ESTABLISHED 1872

Published at 34 North Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices, 10 East 39th St., New York, N. Y.

Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
Washington Correspondent

Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCV New York, July 21, 1932 No. 3

PAPER AND PULP INTERESTS AT THE OTTAWA CONFERENCE

According to reports the whole Canadian people are keyed up to high hopes and expectations over the Imperial Economic Conference which opens in Ottawa this week, and which is being attended by the most important and representative delegations from the Empire that have ever got together outside the British Isles. In addition to the official delegates, hundreds of representatives of business interests from Great Britain, Canada and other parts of the Empire are in Ottawa to be on hand for consultation as the discussions develop on establishing mutually preferential trade between the various units, which is the main purpose of the gathering.

Already the pulp and paper interests, and the allied lumber interests have presented their respective cases to the Canadian government in the hope that arrangements may be made to enlarge their markets. The details necessarily are confidential, but the plans of course are based largely on securing a large share of the trade mainly of the United Kingdom.

As regards the lumbermen, additional urgency has been given to their case by the action of the United States Government in placing new duties on their products which virtually shuts them out of the United States market, and as the United Kingdom imports virtually all her lumber requirements, it is hoped that arrangements may be affected by which purchases of this will in future be made in Canada rather than in foreign countries.

Canada possesses an overwhelming proportion of the soft woods of the Empire, and with a good preference could capture the soft woods trade of Great Britain, plus the softwoods markets of the other Dominions. This would so increase production in Canada as to more than compensate for the loss of the American market. In return the lumber interests it is understood, would undertake to confine their purchases of machinery, steel rope, etc., to Great Britain. At present the British market is mainly served by Russia and the Baltic states, and, to a lesser degree, by the United States. Something like an embargo would be necessary against Russian softwoods to divert the trade to Canada, and a moderately high tariff would suffice against the Baltic states.

As to how far any of the proposals are practicable in regard to lumber or the pulp and paper trade remains to be seen, but hopes are keen for substantial benefits.

NEW USES FOR PAPER

New ideas worked out in paper, inventive genius turned into paper channels to produce useful paper articles—these will be among the features at the forthcoming National Inventors' Congress to be held in the Multnomah Hotel, Portland, Ore., from August 1 to August 6.

Pacific Coast inventors, working among the wealth of pulp and paper products of this particular section of the country, will exhibit several distinctly novel inventions, some of a fundamental character, capable of opening new markets for paper and paper products and widening usage in both business and home fields.

One of the striking new exhibits, now being arranged, will feature a paper slipper, a boudoir shoe for Milady composed of heavy paper, designed and patented by N. Yeager of Berkeley, Cal. Since the cost production is so small, the new paper slipper has been designed and suggested by the inventor as a new source of advertising, a medium for good-will as well as publicity on the part of hotels, inns, resorts or swimming pools, since they may bear the imprint of these places, be used by guests, and then given away by such hotel or resort proprietors, to further advertise such places far and wide by the novelty boudoir shoes, or pool slippers.

Among other outstanding inventions, more of a useful home or kitchen accessory than a useful business building tool, such as the paper slipper, is the invention of a Washington housewife. This Northwestern woman, in a pulp and paper center, grew weary of constantly cleaning dishrags, and so the world will be the richer for her nonwashable paper dishrag which she has designed for the modern woman, anxious to improve her housework.

These and other exhibits will reflect the vital spark of an original idea, as applied to paper. Coast inventors will show their brain-work before delegates from all parts of the country to the national inventors' congress, and will exemplify with their paper products that Americans to a larger extent than other people are fond of the newest and most novel wares,—and usually they find the wherewithal to purchase the new, as they succumb to inherent demands stimulated by novelty.

SCANDINAVIAN MARKET SLOW

Scandinavian wood pulp exporters report orders received as few and far between. Sulphate pulp continues in a relatively better position than sulphite, owing largely to the curtailment in production following the strike in the

Swedish pulp mills, which is reducing output by approximately 40,000 metric tons per month. Sulphite prices continue weak, and while no outstanding reductions have been noted recently, lack of confidence in the market is reflected in the small sales for forward delivery. In addition to the generally lowered demand for these products from paper manufacturers, exchange difficulties and restrictions on imports imposed in various countries are contributing to the weakness of the market.

The Scandinavian paper market as well as the wood pulp market, is marked by weakness and uncertainty. There was a temporary improvement in the demand for certain classes of paper, but this has passed and the market on the whole now is exhibiting a downward trend, which suggests that the usual summer slackness is now under way. If so, no real improvement in the market can be expected during the next few months, unless a marked change in general business conditions manifests itself.

Want Decision on News Print Rates

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 20, 1932.—A petition has been filed with the Interstate Commerce Commission by various railroads in the east, south and western trunk line territories asking for a decision in connection with news print rates in those territories, the investigation of which was begun in 1928.

Calling the Commission's attention to the importance of the traffic in news print in the United States and to the fact that such traffic supplies a "substantial percentage of their total revenues," the carriers asked that no further delay occur in bringing the investigation to a close.

The Commission was asked to take judicial notice of the failure of the roads to earn the fair return on their investment contemplated by the Interstate Commerce Act in deciding the instant case, as well as the revenue situation and financial condition of the carriers involved, and pointed to the so-called "Grain Case" as an example of a similar proceeding.

"The instant investigation," said the petition, "was initiated by the Commission on July 12, 1928, almost four years ago. The briefs were filed on August 1, 1930, since which time nearly two years have elapsed. Notwithstanding the foregoing facts a proposed report has not been rendered.

"The defendant and respondent railroads on behalf of which this petition is submitted venture to urge that a course of procedure, calculated to eventualize, with as little further delay as practicable, in a decision in this investigation and in the consolidated complaint cases and investigation and suspension proceedings, should be adopted and adhered to by the Commission.

"News print paper," said the petition, "moves in very large volume from numerous origins in Canada, or in the United States located east of the Mississippi River, to destinations in the territory involved in this investigation. The immense total of that news print paper tonnage is disclosed by the record herein, which also demonstrates that the origins and destinations of the news print paper shipments are widely distributed.

"That the aggregate annual revenues derived by the defendant and respondent railroads operating in the Eastern Group, the Western Group and Southern Group in transportation of news print paper from those origins to those destinations represent a very substantial percentage of their total revenues can not be denied."

Referring to the action of the Supreme Court of the United States in annulling an order of the Commission which cut freight rates on grain and grain products by approximately $20,000,000 per year, the petition declared:

"The decision of the Supreme Court in the 'Grain Case' turns upon the question whether or not there has been a change in conditions pertinent to the original grain case heard and decided by the Commission since the hearing held before that tribunal was concluded in September, 1928, which would justify a new hearing before the Commission.

"It seems clear from the text of the Supreme Court's decision in that case that the court has interpreted the Act as providing that the Commission shall take into consideration in deciding rate issues similar to those presented in the Grain Case, and similar to those here at bar in this General News Print Rate investigation, the failure of the carriers concerned to earn the fair rate of return contemplated by section 15a of the Act, as well as the revenue situation and the financial condition of these carriers; also, that the facts with respect to the matters indicated above have a vital bearing upon the issues in a case, such as the instant proceeding, involving rates on one commodity such as news print paper."

"There was no other substantial ground," said the petition, "upon which the Supreme Court's decision that the Commission's order was improper and invalid for not reflecting up-to-date conditions can be construed as being founded."

It was pointed out that since the record in the present proceedings was closed on November 23, 1929, a "great many material changes have taken place in the affairs" of the railroads, which have "affected them adversely," and which should be taken into account by the Commission in deciding the issues involved in the case.

The Commission, it was emphasized, should take judicial notice in its decision of the "very substantial decline in traffic, the inadequate rates of return, and the precarious financial condition of those railroads."

Crown Willamette Shows Gain

Consolidated net profit of the Crown Willamette Paper Company, a division of the Crown Zellerbach Corporation, amounted to $2,233,926 for the fiscal year ended on April 30, comparing with $1,893,630 for the preceding year. The profit includes earnings of Pacific Mills, Ltd., after deducting proportionate interest of minority stockholders. Operating profit before depreciation, depletion, charges and income taxes was $6,999,224, against $6,754,282. Depreciation and depletion reserves were $2,728,699 and $357,777, respectively, against $2,629,450 and $548,450 a year ago.

Current assets on April 30 amounted to $10,660,416, and current liabilities to $2,388,454, leaving a net working capital of $8,271,962, compared with $6,433,863 a year before.

Latex Fiber Industries To Start

[FROM OUR REGULAR CORRESPONDENT]

BEAVER FALLS, N. Y., July 14—Operations are to be started within a few days by the newly organized Latex Fiber Industries in its plant in this village. W. S. Woodson has been appointed general superintendent and arrived here this week to take over his new duties. Equipment has been installed and everything is said to be ready for production activities. The company was incorporated recently and a number of prominent paper mill men are among the directors. The concern is now recruiting a force of employees.

If BRIAREUS LIVED TO-DAY...

with his hundreds of arms and his fifty heads, what a tender of the older-type paper machine he would be! With a pair of eyes to watch each of fifty operations, with arms stretched from every side to juggle rheostats, to make changes in draw, or to shift belts, he wouldn't even have minded losing a finger or two in lapping pulleys.

But there's no need for Briareus with a General Electric sectional drive. The adjustment of "draw" and "speed" are made from the front of the paper machine. These adjustments are made with hand cranks and hand wheels, providing changes in exceedingly fine steps. There is no uncertainty as to the number of turns to take to obtain draw adjustment, or how far to move the speed-adjusting handwheel to obtain a new paper-machine speed. Each section can be started and stopped or "inched" from the front of the machine. Any number of sections can be started simultaneously—a great convenience if you want to "spot" the wire or "rope" the dryer felts at the same time.

Why demand that your machine tender be a Briareus? With the advanced G-E sectional drive, the same operator can make better paper more cheaply—only one of many facts that work to your profit. Your nearest G-E office will be glad to supply complete information. If more convenient, address General Electric Company, Industrial Department, Schenectady, N. Y.

G-E Selsyn draw adjuster and G-E enclosed paper-machine speed-control panel . . . two important units that help simplify paper-machine operation

237-60

GENERAL ELECTRIC

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Convention Etiquette and The Goal of TAPPI

By Benjamin T. Larrabee[1]

Mr. Chairman, members of the Technical Association and guests, I certainly feel very much honored to be with you at the opening of this convention as a representative of the executive committee of the Technical Association of the Pulp and Paper Industry. I do not know just why the national association honored me with this office and picked me from all the men on the Pacific Coast to represent them. However, it is a job that some one had to do and if I can in any way accomplish something in a general way for the pulp and paper industry of this country, and for the Pacific Section of TAPPI in particular, I shall feel that what effort I might put into this work will be worth while.

Personally, it has been my good fortune to have been associated with the Superintendents' Association and also with the Technical Association in their activities in the past, and from which I believe by my experience with these associations I have been able to learn the real object of the associations and what they mean to the pulp and paper industry, and what they are endeavoring to accomplish.

Speaking about associations affiliated with the pulp and paper industry in general, there is, of course, the parent organization which is known as the American Paper and Pulp Association, which deals exclusively with problems of a very general nature. Affiliated with the parent organization are three associations known as the Technical Association, Superintendents' Association and the Cost Association. To pick one of these associations that is any more essential than the other to the industry would be a very difficult thing to do. All three of these associations have certain duties to function which are of vital importance to the pulp and paper industry as a whole. We should never forget that all three are of tremendous importance and it is essential that all three of these associations keep in step in order to bring out the very best for the industry as a whole.

The Technical Association is the oldest association of the three. Fundamentally, of course, its objective was to promote the technical problems pertinent to the pulp and paper industry. Next, the Superintendents' Association was organized and developed for it was felt by the superintendents of the various pulp and paper mills in the country, and rightfully so I believe, that the Technical Association was so technical that the problems they discussed at Conventions were over the heads of the practical superintendents, therefore, the necessity of the Superintendents' Association. Everybody who has watched the development of these two associations in the past ten years will agree with me, I believe, that the technical man, or the Technical Association in its activities, has developed to be more practical and, on the other hand, the Superintendents' Association has tended toward the technical side of their problems. Therefore, the inevitable has happened and these two associations have been drawing closer and closer to each other in their activities, especially during the last four or five years. The broadminded superintendent, or technical man, who has watched this development will agree with me, I believe, that the technical man realizes more forcibly each day his dependence upon the superintendent, and vice versa the superintendent appreciates more fully than he ever has his dependence upon the technical man. In other words, the fact has gradually grown upon both groups that if we are ever to reach the highest point in efficiency, as far as the pulp and paper industry is concerned, there must be an extremely intimate and close connection between the technical man and the practical superintendent.

We hear very little about the third association, which is the Cost Association, but, personally, I have followed their activities a great deal and if we sit down and coolly analyze the situation we can all readily see that the Cost Association plays its part in the advancement of the pulp and paper industry. In other words, the Cost Association is continuously striving to develop a cost system which will show to the executives of the pulp and paper industry the exact cost of all phases of their operation, which helps them to intelligently and economically run their mills.

The particular point that I want to bring out in this more or less general talk in regard to associations is the fact that the Technical Association, the Superintendents' Association and the Cost Association are indispensable to each other so far as the progress of this great pulp and paper industry is concerned.

So much for generalities concerning various associations connected with the pulp and paper industry.

What is the object of an association connected with the pulp and paper industry, whether it be one association or the other, and what is the attitude that the individual members should adopt toward that association? In the first

* An address made at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Multnomah Hotel, Portland, Oregon, May 6-7, 1932.

[1] Member TAPPI, superintendent, Pulp Division, Weyerhaeuser Timber Company, Longview, Washington.

place, we must never forget the fact that we are individuals fortunate enough to be connected with the pulp and paper industry, and that our fundamental object as a member of any of these associations, especially TAPPI, should be to always bear in mind that our activities in these associations should be such that we are forever mindful of the fact that our particular object is for the promotion and welfare of the pulp and paper industry as a whole. There should never be, under any circumstances, any selfish motive on our part for our own personal promotion or good. In other words, we are not thinking in the present, so to speak, but what we are actually building is a perpetual foundation for the pulp and paper industry as a whole.

There are several different ways in which the members of the association are benefited personally by their contact with these meetings and can, in my opinion, derive the greatest benefit. It has been my experience that the greatest benefit to individuals that can be obtained from these conventions is brought about by lobbying with men whom they have problems in common. In other words, I believe that every man attending one of these meetings should tabulate in some form the perplexing problems, or problems that are troublesome to him, and come to these conventions prepared to affiliate or pick out men who are interested along their same line and make it a point to discuss these problems. I believe if you would do this you would be surprised at the information and help that you will be able to obtain. Automatically, without fully realizing it, you will find that on lobbying with these men you will give as much, if not more, as you actually receive. This sort of contact, in my opinion, is the most valuable means of building up yourself as you can possibly pursue.

Second in importance, I believe that the papers and their discussion rank next. Right here, I want to say this, gentlemen, that in order for this division of the Technical Association to get the most out of these programs, you men should get onto your feet and enter enthusiastically into the discussions, that follow the reading of the papers. In my opinion, the discussions, if they are of the proper kind, are sometimes more valuable than the papers themselves.

Next in value, in my opinion, is the social end of these conventions. It is a wonderful thing to be able to mingle socially with your fellowmen and, believe it or not, if the sociability of these conventions is well balanced and of the right nature it is one of the finest things pertaining to any convention.

Speaking of sociability, I want to warn you gentlemen that our managers and higher executives are sending us to these conventions primarily for the direct benefit of their particular mills, and they expect us to pay strict attention to business and conduct ourselves properly at these meetings, and rightfully, they expect that the sociability of these conventions will be secondary to the regulated business of the same. They naturally expect that we will participate in the social end of the conventions, but still at the same time they rightfully expect us to conduct ourselves in such a way that it will be a credit to the association and the companies which we represent.

Every association during its progress reaches a breaking point where it is a question whether it is going to live or die, chiefly because of the fact that its members major in the social life of the association rather than the real worth while activities. The answer to this problem, in my opinion, is the encouragement for the ladies to attend both the sectional meetings and the national association meetings. I believe you will agree with me that the presence of the ladies has a tendency to brace up the morale of any association, and it was a deep source of gratification to me to learn that the Pacific Section of the TAPPI is inviting their ladies to participate in their activities.

It is a fact, gentlemen, that any association that is not strong morally will never succeed. It is just as an important part of our foundation, or any association's foundation, as any other branch of the work.

This association has a tremendous job ahead of it. The pulp and paper industry of the West Coast is really in its infancy, and we have many, many problems that must be worked out and developed. In order to expedite the industry on the Pacific Coast it is necessary that we all put our shoulders to the wheel and do everything in our power for the advancement of the industry.

As most of you men well know the greatest criticism of the pulp produced here on the Pacific Coast is that it lacks uniformity. There is no question in the minds of any of us but that we can produce as good quality, if not better, than can be produced in any other part of the country. It kind of burns me up every time I read about some misinformed gentleman from the East, who absolutely does not know what he is talking about, stating that we cannot produce a pulp of high quality and equal to that produced in the Middle West and East. You know and I know that this is not true, for we are able to produce a pulp of equally as high quality, if not better, than anything that can be produced in the Middle West or East. In fact, we have demonstrated this very clearly, but, at the present time, I think our big problem is to produce or continue to produce a high quality pulp which is uniform. Uniformity should be our key note and should be the objective to which we should bend our efforts. Therefore, it behooves us all to give this matter a lot of thought and cooperate in every possible manner that we can by attending these association meetings and doing everything within our power to promote and perfect the pulp and paper industry of the West Coast and the country as a whole. I know of no better way to do this than to take an active part in these association meetings, and if you are asked to serve on a committee for heaven's sake do it willingly and do your part.

I wish I knew more about the inside workings of the Technical Association but, gentlemen, I am positive that you are not making a mistake by affiliating with the national association. You may feel a little bit disgruntled at times and possibly have a feeling that the Technical Association is perhaps not doing as much as you think they should financially and other ways, but I believe that if you would analyze this situation clearly and stop to realize what you receive from your affiliation with the national association, such as the PAPER TRADE JOURNAL the Technical Association Papers and the TAPPI standards, Bibliography and Patent Review, Yearbook, together with the privilege of receiving the various reports along the lines of service to members, you would have an entirely different viewpoint.

The Technical Association is doing a wonderful work for the industry. It needs the support of you men and believe me, gentlemen, it not only needs it but it deserves it. As the only national representative here today, I want to urge all you men to be loyal to the association, and do everything in your power to promote its work. Above all things, if you are asked to do some little part of the work don't hesitate. Get aboard the band wagon and help them out all you can, for when you do this you are automatically advancing and promoting the pulp and paper industry not only here on the West Coast but in the country as a whole.

Process Improvements and Controls In Sulphite Cooking Practice*

By J. P. V. Fagan[1]

From my observations here on the West Coast the greatest problem, from an operating standpoint, seems to be to maintain a uniform cooking acid condition.

Let us look into the conditions under which we all have to operate.

First we have the everpresent wood problem; the types are few, but, consider the enormous range of moisture contents, with the larger percentage of operations struggling under conditions of 50 per cent or more of water content.

Then we have the sapwood condition as in slabs, and the differences in woods grown under low and high land conditions, and we also must keep in mind overripe wood.

These are all commonplace conditions that appear in all West Coast plants. As to the seasonal variations, these are not so great in range nor so troublesome as our friends East of us have to contend with, for which we can be thankful.

Now the problem is to make high grade uniform pulp out of a year-full of the above variables. In the regular well ordered plant we just have to take what comes and we do the best we can but an analysis seems to reveal the fact that we can do better if we arrange to compensate for these variables.

Ordinarily we make acid of a uniform daily test and send it to the tanks and pray that it will average up to the test we seem to have found the most practicable for our plant. The digesters are filled with whatever chips happen to get into the hopper and whatever acid is ahead in the tanks. If the steam is a little wet and the wood happens to be dryer than usual we are jubilant, but let the reverse happen and grouches appear as if by magic. But just think what you are asking of that cook: You give him a digester full of variables and set an ideal 100 per cent pulp for him to achieve. Lady Luck alone could bring results from such a chaotic mess.

I have tried to unscramble this mess and by pitting one variable against the other to nullify the effects of at least some of them.

Instead of the cook juggling all of these variables and trusting to luck I have allocated the ones capable of control to different members of the crews as part of their daily routine work, and this has solved the problem for the greater part.

It is carried out somewhat in the following manner:

The cook has control within limits of the cooking acid free, the helper of the cooking acid temperature and the acid maker worries only about the cooking acid combined.

Practice seems to indicate that the best combined to carry on the West Coast hemlock woods is 1.15 to 1.20, with a cooking acid free of about 4.00 per cent.

It works out about like this:

The acidmaker takes hourly tests of the tower acid and the reclaimer tank acid; he also takes a Baumé reading of his towers but he is instructed to pay little attention to this reading. He also records the acid tank levels hourly and tests the gas from the reclaimer tanks that goes back to the acid plant.

His particular guiding figure is the combined in the reclaimer, or the first tank, acid. He varies the water input to the towers so to keep this within a limit of .05 per cent. He also carefully watches the volume of acid he is making and keeps this level within a foot all the time.

Now all the while, the cook is keeping account of the free in the reclaimer tank by means of the hourly tests brought up to him and recorded on a daily shift slip for his convenience by the first helper, whose duty it is to keep these figures posted within a half an hour of testing time. If he (the cook) sees that the free is dropping within limits of .20 per cent he drops more side relief to the separator; if on the other hand the acid is raising above the set limit he puts more relief back to the reclaimer tank.

Meanwhile the first helper has been keeping close account of the temperature of the reclaimer tank acid, and he regulates the water on the relief coolers to maintain a uniform temperature, which should be within ± 1 deg. C.

You see, there is nothing complicated about this system of control and it does give a uniform acid condition.

From the above you see there is left to the cook to struggle with, only the difference in moisture content of the wood and its particular physical contents; thus he is free to use his sense of color and smell unhampered.

Now there is another and far more useful aspect of this method that only shows itself when the end of the cook is near, and that is the bleachability. Naturally we all want a high strength pulp with as low bleachability as is consistent with that quality.

If our side relief is properly timed we get the benefit of solvents that come off with the relief at about this time, and you will find that volumetrically and gravimetrically your solutions will not check up. You may find a free of 4.00 per cent by volume but if a careful gravimetric analysis is made you may find as little as 3.50 per cent. The same is true of the combined.

By following this method a ratio of liquid digester relief to raw acid is maintained and consequently the color of the cooking acid is more nearly uniform, and this is a great aid to the cook in color determination for blowing the digester.

If the proper ratio is kept up you can be sure to save from 0.5 to 2 per cent of bleach consumption, and in addition you will have no stock that is difficult to bleach white. The sulphur consumption will be uniform and range well under 300 pounds per ton.

For a maximum strength pulp the bleach consumption will be from 12 to 15 per cent.

The separator losses will vary from 6 to 10 pounds of sulphur per ton.

The limerock consumption will be around 360 to 370 gross pounds per ton.

Your yield will range from 1775 to 1900 pounds fiber per 1000 purchase scale feet of logs.

You need never fear of lime troubles in your blow-pits and you will find that you will have a uniformly easy screening stock with a minimum of screenings.

* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Multnomah Hotel, Portland, Oregon, May 6-7, 1932.

[1] Member TAPPI, superintendent, Puget Sound Pulp and Timber Company, Everett, Washington.

Maintaining Uniform Cooking Acid Conditions *

By W. N. Kelly[1]

Improvements in the sulphite process have been greatly influenced during the past few years by the development of the austenetic chrome nickel steels. At the present time four distinct alloys, or types of chrome nickel steel, are in quite general use throughout the industry, and are giving excellent service with practically negligible maintenance costs.

Alloys Used

Of the four types referred to above, two are obtainable as sheets, tubes and rods, and two as castings. The rolled products are usually known by their original Krupp formulae KA2, and KA2S, as is one of the castings, KA4. The second type of casting is sold under various trade names and contains quite high proportions of chromium and nickel. These vary slightly with different manufacturers, so for the purpose of this paper this type of steel will be referred to as 25-10.

The term KA2 is used to describe an 18 per cent chromium, 8 per cent nickel alloy with a maximum carbon content of approximately .16 per cent. The use of this alloy is usually confined to such equipment as blow pit drainer bottoms, since the comparatively high carbon content seems to make it somewhat unreliable for more severe service. It is available in sheets, tubes and rods.

KA2S is the term applied to a rolled product containing 18 per cent chromium, 8 per cent nickel, but having the very low carbon content of .07 per cent maximum. When properly heat treated it gives excellent service under the most severe conditions to be encountered in a sulphite mill, whether used in rod or tube form.

25-10 and KA4 are the trade formulae applied to two alloys which are available as castings. 25-10 has a high chromium content, usually about 25 per cent, and a nickel proportion of approximately 10 per cent. KA4 is an 18-8 chrome nickel steel to which approximately 3 per cent molybdenum is added. Both of these steels are manufactured on the Pacific Coast, and when properly heat treated are thoroughly reliable. KA4 is sometimes known as KA2Mo. It contains approximately .16 per cent carbon.

By the use of these steels the sulphite mill operator is reasonably sure that a valve or piece of equipment installed today will be giving good service a year hence, with little or no maintenance expense.

The first cost of chrome nickel steel in castings form is still much higher than bronze, particularly where bronze patterns are still being used for valves, fittings, etc. made from the stainless alloys.

The remarkable strength and resistance to corrosion of KA4, however, will permit much lighter design than has heretofore been considered desirable with acid bronze alloys used for sulphite mill work, and should, therefore, lower the first cost of the chrome nickel equipment. Heretofore, relief piping has usually been made from extra heavy copper iron pipe size, fitted with vanstone joints. 10 gauge KA2S welded tube has a factor of safety of 32 at 75 pounds per square inch working pressure and can be obtained for a surprisingly low cost.

During six months time, on an installation of over 50 chrome nickel valves, no maintenance expense whatever has been necessary.

Lime is not deposited to any extent on valves and fittings made from chrome nickel steel. The advantages of this property can be appreciated by most operators who know the delays and irregularities that are caused by lime deposits in steam lines and other fittings. Bronze steam nozzles on digester bottom castings have been lined with 16 gauge KA2S sheet to overcome "liming" and have given excellent results over many months service.

Strainers made from either welded sheet or castings of chrome nickel steel do not corrode and seem to be remarkably free from plugging. Also, the periodic drilling of strainers to clean the perforations is unnecessary.

An interesting development in cooking control made possible by the perfection of chrome nickel steels is an automatic relief control valve now in successful operation.

It has long been recognized that a steady and even steam flow into a digester is a great aid towards obtaining uniformity of product and even operation in direct sulphite cooking. At the present time the usual practice in sulphite mills is to regulate the digester relief by hand while admitting the steam by means of a regulator or pressure controlled valve. In an recent installation this procedure has been reversed, the relief and pressure are controlled automatically and the steam is admitted by hand, the steam flow being controlled by the operator following a predetermined curve laid out on a flowmeter chart.

In actual operation great uniformity and excellent quality have been obtained by this method of cooking control. Its use also eliminates all difficulties and irregularities due to variation in relief line pressures.

Several Pacific Coast mills are now using gauge glasses to control and measure the amount of liquor removed from the digester during that part of the cooking period devoted to side relief.

The usual method of controlling side relief is to open the side outlet at a predetermined time or liquor test. and to drain the liquor from the digester for a certain period or until another prescribed liquor test is reached. However, it has proved to be simpler and easier to control the amount of liquor returned to the recovery system by actually measuring its volume by means of a sight glass.

This method of control is particularly adapted to the West Coast, where the moisture content of the wood used is usually in the neighborhood of 50 per cent.. Approximately 35 per cent of the original volume of acid charged to a digester is returned to the recovery system as liquor, even where a high degree of superheat is present in the steam. The combined sulphur dioxide in the raw acid is thus diluted, more or less, relieved from a digester can cause considerable variation in the finished acid, particularly in mills where the storage provided for finished acid is limited.

Hot Acid vs Cold Acid

A great deal of discussion has taken place on the West

* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Multnomah Hotel, Portland, Oregon, May 6-7, 1932.

[1] Junior member TAPPI, assistant superintendent, Pulp Division, Weyerhaeuser Timber Company, Longview, Washington.

Coast lately regarding the use of hot acid vs. cold. Hot acid is usually available at temperatures of about 60 deg. C. and its use was pioneered in Germany with the object of saving steam. A number of Eastern mills in this country and Canada are using hot acid, but its use is so far rather limited on the West Coast.

Some self evident and proved advantages of hot acid are:

1. Lower limestone consumption.
2. Lower steam consumption.
3. Almost total absence of lime in fittings exposed to direct action of steam.
4. A saving of time on each cook.
5. Lessening of strains on digester linings.

However, it has yet to be proved that acid at high temperature penetrates as rapidly into the chips as acid at lower temperatures containing a higher percentage of free sulphur dioxide. Some observations have tended to indicate that rapid penetration, with its attendant reduction of the amount of screenings produced, is effected more thoroughly by the use of an acid high in free sulphur dioxide than by the use of a weaker liquor at high temperature. It is to be hoped that experimental work will be undertaken to prove this point which has been a subject of controversy for some time. In any case, a hot acid, high in free SO_2, should give extremely rapid penetration.

Liquor Circulation

For a great many years forced circulation, combined in some cases with external heating of the liquor, has been used with good results in the soda and sulphate processes. However, owing to the impossibility of obtaining suitable metals, the use of a positive means of circulation in sulphite digesters was never successful until chrome nickel steels were developed.

Unfortunately, this fact makes the installation of circulating equipment expensive, and so far very few mills have installed any of the devices offered at the present time.

The aim of all forced circulation is, of course, the control and equalizing of temperatures in all parts of the digester. From the standpoint of quality, it is undoubtedly true that with this control assured, the average sulphite mill would be in an excellent position to eliminate what is probably the greatest variable it has to contend with. Uneven temperature conditions do exist and pulp from one zone of a digester may have varying characteristics from that of another, which, when the two are mixed together in the blowpit, will bring the general quality down to a lower average than could be obtained with exact temperature control. Therefore, if sulphite pulp of higher quality is generally necessary or desirable it would seem that a wide field is open to the developers of forced circulation systems.

Omitting the point that it may be good economics to improve quality, it is quite possible that a good return would be obtained on money invested in a system of forced circulation, combined with external (indirect) heating of the liquor.

With this combination there is practically no liquor relief from the digester and thus very little heat is lost. The amount of screenings produced should be limited to such chips too large to properly disintegrate in the cooking time allowed. The breaking down of active chemicals should be eliminated because of the absence of direct contact of steam with the cooking liquor.

However, with present equipment the problem of good circulation is always present, and a study of what might be termed its mechanical side has enabled some mills to greatly improve the thermal conditions in their digesters.

The majority of wood used on the West Coast has a high moisture content and the chips made from this wood naturally pack tighter in the bottom cone of a digester than chips manufactured from wood with a low moisture content. These effects can readily be observed in a chip bin.

By observing temperatures in different parts of the digester simultaneously, it can be proved that heat is distributed less evenly when this tight packing occurs than when the voids between the chips are larger in size. This is particularly true of mills in which steam is admitted to the digester at one point, through the bottom fitting, or where, due to limitations of equipment, the steam must be admitted rapidly. A careful study of the method by which the steam admitted to a digester is distributed has enabled some operators to greatly reduce the temperature variations in their digesters with resultant improvement in their product and more economical utilization of the raw materials involved.

When steam is admitted directly to the bottom of a digester, it is, of course, immediately condensed in the liquor surrounding the steam inlet. The temperature of this liquor rises and bubbles of SO^2 are evolved. Therefore, it would appear logical to expect better circulation when an acid high in free SO_2 is used because more gas is evolved during the early stages of the cook. Unfortunately most mills on the coast, or elsewhere, are still subject to acid variations due to climatic conditions. Truly uniform and strong acid the year around is something always hoped for, but never obtained.

Warm water for acid making makes difficult the maintenance of the percentage of free SO_2 which is obtained without difficulty during that period of the year when cold water is available. It is, therefore, interesting to note that simple and compact apparatus is being used more extensively to eliminate the variations caused by seasonal changes.

In its simplest form this apparatus consists of an absorption tower in which the raw acid from the limestone or milk-of-lime towers absorb part of the burner gas as it is by-passed through the absorption tower. The amount of burner gas that can be absorbed in this system is limited, and a recent development operating with good results, uses pressure as a means of absorbing this burner gas. The equipment consists of a positive displacement blower and absorption tower and gives positive and simple control of the percentage of free SO_2 in the raw acid.

Acid filters of various types have come into quite general use in the last few years. Their use insures that the acid delivered to the storage tanks is free from fine sandy material which does not settle out in a settling tank. Also, if any sulphur happens to find its way into the raw unfiltered acid, it is absolutely prevented from reaching the digesters where its presence might cause serious difficulties.

Richard Gray Returns from Russia

WATERTOWN, N. Y., July 18, 1932.—Richard Gray, master mechanic for the Bagley & Sewall Company, has returned from Russia where he supervised the installation of equipment in the Volga River Paper Mills. He was sent to that country about two years ago by the local company and has been aided in the task by a group of skilled workmen. It was his second business trip to Russia as he was employed on a similar project previously at the Volga River Paper Mills at Belankha, a short distance from Moscow. He refused to be quoted in regard to existing conditions in that country.

The Chlorination of Wood Pulp *

By Ralph B. Hansen[1]

The advent of new and different ideas and methods resulting from industrial research and experience brings with them many new and sometimes adverse opinions and decisions. These contrary ideas are sometimes well founded, being brought about by differences in findings or differences in the interpretations of those findings. No matter how they come about, if they are conscientiously made, there is justification for their existence, yet we must not lose sight of the fact that they have a very deterrent effect upon unified progress. With these ideas in mind this paper is offered with a hope that it will help to clarify some of the oft repeated questions regarding the old, yet relatively new, idea of purifying cellulose with chlorine.

It seems to make but little difference whether it is at a round table conference of mill executives or with a couple of the boys sitting down behind the chlorinators, the same old discussion comes up. The question is:

1. Is chlorination, oxidation and bleaching one and the same thing?
2. Is hypochlorous acid always an oxidizing agent?
3. Is hypochlorous acid formed when an aqueous suspension of unbleached pulp is treated with chlorine?
4. Does hypochlorous acid always break down to give hydrochloric acid and oxygen or might it break down to give chlorine and water?
5. Is the treatment of a bleached or nearly bleached pulp with chlorine in the presence of water one of oxidation or chlorination?
6. What is meant by acid bleaching?

Chemistry of Bleaching

Many well-meaning "authorities" tell us that bleaching, oxidation and chlorination are synonymous terms and in our perplexity we turn to Webster's dictionary only to find that bleaching is any kind of a whitening effect. Therefore, we might be constrained to think that Johnny's action of washing behind his ears is similar in theory to the bleaching of wood pulp. This cannot be true, however, therefore, we must first define bleaching. Bleaching may be defined as the whitening effect brought about by a process of oxidation due to chemical treatment. So far as the paper maker is concerned, this is true. Therefore, it can very easily be shown that chlorination and bleaching are not synonymous terms.

Any substance which readily gives up nascent oxygen is an oxidizing agent, when it gives up that oxygen. If this same substance under different conditions breaks down to give something other than nascent oxygen it would not in this case be an oxidizing agent. Such a substance is hypochlorous acid, which in the presence of a substance whose affinity for oxygen is greater than its affinity for chlorine acts as an oxidizing agent. However, if there is a substance present whose affinity for chlorine is greater than its affinity for oxygen, hypochlorous acid acts as a chlorinating agent, in such a case chlorine and water will be formed. Note the following reactions with chlorine and hypochlorous acid.

If there is a predominating affinity for oxygen:

1. $HOCl \rightarrow HCl + O$

If there is no affinity for oxygen or chlorine:

2. $2\ HOCl \rightarrow 2\ HCl + O_2$

If there is a predominating affinity for chlorine:

3. $RCH_3 + 3\ HOCl \rightarrow RCCl_3 + 3\ H_2O$

Or if straight chlorine is used in (3) above:

4. $RCH_3 + 3\ Cl_2 \rightarrow RCCl_3 + 3\ HCl$

Equation number (3) above does not usually take place as shown because what is commercially called hypochlorous acid is the product of the following reaction between chlorine and water.

5. $Cl_2 + H_2O \leftrightarrows HOCl + HCl$

If the product of equation number (5) is substituted for hypochlorous acid in equation number (3) we have as follows:

6. $RCH_3 + 3\ (HOCl + HCl) \rightarrow RCCl_3 + 3H_2O + 3HCl$

which is what actually takes place if unbleached pulp is treated with so-called "hypochlorous" acid.

Recalling some of our early chemistry we will remember that the reaction between chlorine and water is as given in equation number (5) above. We remember also that this reaction is reversible. By this is meant that the rate at which the two molecules on the right are transformed into the two on the left and vice versa is proportional to the chemical affinity which exists between the different molecules and to their molecular concentrations. This transformation is continued until an equilibrium is established. For any given reaction this equilibrum is constant and will remain so until interfered with by some external force. If such disturbance occurs the above reaction will proceed in whichever direction is necessary to restore this equilibrium. This is known as the law of molecular concentrations and may be written as follows:

7. $$K = \frac{[Cl_2]\ \ [H_2O]}{[HOCl]\ \ [HCl]}$$

In other words the product of the molecular concentrations of the substances formed divided by the product of the interacting substances is always constant.

However, where chlorine is added to water containing a substantial amount of unbleached pulp stock the whole story is changed. Over 35 years ago Cross and Bevans studied the action of chlorine on wood and other vegetable fibers. In this work it was shown, and it has been verified since, that when a ligno-cellulose compound is treated with chlorine, lignin-chlorine is formed. See equation number (4) above. (The writer has indicated RCH_3 as being a substance similar in reaction to lignin. Also that $RCCl_3$ is a reaction product similar to lignin chloride.) It was further observed by these and later investigators that with the formation of lignin-chloride hydrochloride acid was simultaneously formed and further that the chlorine going to form hydrochloric acid was equal in amount to that combining with the lignin. This action continues just as long as there is any lignin left with which the chlorine may react. In other words, let it be emphasized that as long as lignin is present, oxidation does not take place during chlorination. This is true for two reasons, first, because of lignin's greater affinity for chlorine and, second, because of the increased amounts of hydrochloric acid forcing reaction number (5) toward the left and, therefore, preventing the formation of hypo-

* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Multnomah Hotel, Portland, Oregon, May 6-7, 1932.

[1] Member TAPPI, technical director, Pulp Division, Weyerhaeuser Timber Company, Longview, Washington.

chlorous acid. In other words, hypochlorous acid or the only oxidizing agent which could possibly be present must not be formed or must be removed. Not only that, but if commercial hypochlorous acid (HOCl + HCl) were formed or was added from an external source the result, would be the same and the products of reaction would be the same. (Note that the products of reaction in equation number (4) and equation number (6) are identical except for water which may be forgotten.) In equation number (3) the reaction products are somewhat different but the results on cellulose are the same so far as the writer has been able to determine. From this it is plain to be seen that chlorination of unbleached pulp is in no sense an oxidation process.

However, as said before, if there is no substance present during this chlorination which has an affinity for chlorine greater than its affinity for nascent oxygen, oxidation will take place. Such is exactly what happens when a semi or nearly bleached pulp in aqueous suspension is treated with chlorine. In this case, hypochlorous acid is formed as in equation number (5) with its subsequent breaking down to yield oxygen as in equation number (1). This is purely oxidation.

The question, "What is meant by acid bleaching?" should be answered by saying that acid bleaching is oxidation while in an acid condition. Therefore, chlorination may or may not be acid bleaching. Chlorination in the presence of lignin is not acid bleaching because no oxidation takes place until after all lignin has been removed. Chlorination under conditions where HOCl breaks down to give hydrochloric acid and oxygen is oxidation.

Chlorination Practice

So much for the theory or chemistry of chlorination. Let us now turn to the practical commercial application of some of these principles. The use of chlorine on an industrial scale for the removal of lignin from ligno-cellulose compounds is now a successful reality, being used in several of the largest bleaching plants in the industry. From the chemistry of these reactions may readily be seen the many advantages which the chlorination method has over the oxidation method for the purification of cellulose. These many advantages have long been known but before they could be used commercially, it was necessary to await the development along mechanical lines to the end of obtaining equipment which would give almost perfect agitation and resist the ultimate acid and alkaline corrosion conditions. Such equipment has now been developed and is installed and working very satisfactorily in several modern bleaching plants.

There are two distinctly different types of chlorinating equipment being used or recommended for use today, the one being a batch system and the other being a continuous system. The batch system is the better of the two, due largely to the lack of uniformity of treatment of stock passing through present day continuous systems. To date it has not been possible to absorb the requisite amount of chlorine in a stock-water suspension and have a homogeneous mixture when passing through a continuous chlorinator once. If a method of recirculation is used, with a continuous intake and a continuous outlet of stock, lack of uniform treatment is obvious. Some of the stock passes through without recirculation and some recirculates an indefinite number of times. It must be remembered that uniformity of treatment in this phase is essential because of not only the harm being done by lack of uniformity in this phase but also because of harm done by treating a nonuniform stock in the next phase.

Continuous vs Batch Systems

There are other disadvantages evident in the continuous system, among them being:

1. The impossibility of controlling the amount of stock passing through per unit of time, due to variation in power, consistency, demands, etc.
2. The impossibility of controlling the amount of chlorine passing through per unit of time, due to variations in temperature and pressures of chlorine container, corrosion of expansion valves, dirt in chlorine pipe lines, freezing effect if liquid chlorine is used, etc.
3. Continuous adjustments of chlorine feed necessary to take care of continuous variations in bleachability of incoming stock.

Continuous chlorination systems may come but they are a long way off at the present writing.

With the batch system the laboratory or scientific method of control is self-evident. Contrasted with the continuous systems the following advantages are clearly seen:

1. A very definite amount of chlorine may be measured or weighed into a very definite amount of stock.
2. Consistencies can be controlled.
3. Yields can be measured.
4. Production can be measured.
5. Shrinkages can be measured.
6. High rates of agitation make possible high rates of chlorine absorption without polluting the surrounding atmosphere by escaping chlorine gas.
7. Varying amounts of chlorine can be carefully measured and added as the bleachability of the stock varies. By so doing the stock entering the second phase may be made exactly uniform in bleachability.

Whenever all of these factors can be accomplished and controlled with a continuous chlorinator, then and only then will the continuous system have a fighting chance with the batch system.

Chlorination vs. Oxidation Methods

It matters not what kind of a chlorination system is used, as long as it is conducive to good control and permanency, it has a large number of very marked advantages over the oxidation method of purifying cellulose. Some of these advantages are as follows:

1. A maximum amount of non-cellulose constituents are removed with very little or no oxidation. This is due to removing all the lignin as lignin chloride in an acid condition but not an oxidizing condition.
2. It is further responsible for increased quality in that it adds another phase to the purification problem, after which a washing is necessary, thereby removing loosened and soluble coloring matter which would, if the work were all done in one phase, have to be bleached white with oxygen.
3. The chlorination method of removing impurities is a very decided economy over removing these impurities by oxidation. There is at least a 20 to 30 per cent saving in chlorine by the use of gaseous chlorine in the first phase over that necessary if an alkaline bleach liquor were used throughout the bleaching process. This is true in a very modern bleaching plant where approximately 75 per cent of the necessary available chlorine is added as gaseous chlorine in the first phase of a three phase system, treating unbleached sulphite pulp in the cold and at about 3.5 per cent consistency. In the second phase about 24 per cent of the necessary available chlorine is added as calcium hypochlorite to the stock at about 16 per cent consistency and about 75 deg. F. The remaining 1 per cent of the necessary chlorine (about 0.05 per cent, on the weight of the stock) is added as gaseous chlorine in a

third phase at similar consistencies and temperatures to those used in the first phase. By this system a maximum amount of the coloring matter is removed by chlorination and a minimum amount by oxidation. Therefore, as pointed out in previous paragraphs, a minimum amount of oxidation of cellulose occurs and a maximum retention of physical characteristics is evident.

4. By virtue of a minimum amount of oxidation of cellulose, greater yields are characteristic of the chlorination system. In the mill just spoken of above, the shrinkage of stock through the bleach plant is 4 to 6 per cent less than where a hypochlorite bleach is used throughout the process.

5. As mentioned before, the system described above has much more flexibility and is, therefore, much easier to handle, thereby making for greater uniformity, the great cry of the paper manufacturer today.

Summary

1. Hypochlorous acid is an oxidizing agent only when in the presence of a substance having a greater affinity for oxygen than for chlorine.
2. Hypochlorous acid is a chlorinating agent in the presence of lignin.
3. Reaction products of treating lignin with either chlorine or commercial hypochlorous acid are the same.
4. Chlorine as such is not a bleaching agent and does not form a bleaching agent with water while in the presence of an organic substance similar to lignin.
5. Chlorine does form an oxidizing agent and, thereby, causes oxidation of a purified or nearly purified cellulose if no lignin or similar material is present.
6. Acid bleaching is oxidation while in an acid condition.
7. The removal of lignin from wood pulp by the use of chlorine is responsible for better quality, greater yield and better uniformity.
8. The batch system of Chlorination is superior to the continuous system from the point of ease of control and uniformity of product. It makes possible laboratory precision of processing.

The Importance of Control In The Ground Wood Mill*

By Ray J. Schadt[1]

The function of technical control in any particular industry or department of an industry has for its primary purpose the determining and maintaining of certain standards of quality, and of production. To do this, it is necessary to break down the component parts of quality and production and control these. If the raw materials, and processing is standardized and controlled, the final product should conform to a definite quality and at a definite rate. That these functions of control are important are perhaps first borne out by the fact that practically every groundwood mill of any size has some form of quality and production control.

This short paper does not attempt to introduce any new ideas particularly, but merely serves as a review of the most essential information now in use.

Freeness

Probably the most important control test used today in the groundwood mill is the freeness test. Although it does not measure quality directly, it does measure it indirectly. It really measures the water drainage rate from a sample of pulp under standard conditions. This indicates the performance of the pulp when it reaches the wire on the paper machine. The freer the pulp, the more rapid the water drainage through it.

It would be possible to obtain the same freeness test by any number of combinations of groundwood, screenings and white water. In fact it is possible to combine waste screenings and white water to give a mixture with the correct freeness test for making a particular grade of paper. It might be said that a certain freeness test only indicates within limits a certain quality. With this being true, the freeness test measures quality only because of other factors. The other factors that enter into the manufacture of groundwood are the species of the wood used, the quality and surface of the stones, and the screening process. For any one plant these three items are more or less fixed. It is because of this then that the freeness test actually measures quality. Although the freeness test works very well as a control test, it does not actually measure quality directly.

Screen Fractionation

The Forest Products Laboratory has been working on a method of controlling groundwood quality by means of fractional screening. This would seem to be a more exacting measurement since it would be based on fiber length. By such a method, it is first necessary to determine what length of fiber gives the most suitable sheet of paper and then to hold to the maximum percentage of this fiber length in the groundwood.

Whatever test is used for quality—whether it be freeness test or fractional screening the point of sampling and the frequency is of utmost importance. The point of delivery of the stock to the machine storage chests seems to be the most accurate point for sampling. A frequency of at least once an hour will ordinarily show any changes soon enough. Other points where freeness tests may be taken are on the screened stock before deckering or on the stock from the stones.

Tests taken on the screened stock may give varying results due to changes in consistency of the screening mixture. The change in consistency is made usually by changing the amount of white water used. This would of course change the freeness considerably. Due to change in the consistency of the stock in the grinder pits, freeness at this point may be likewise affected. The slivers made on the grinders will also affect the test at this point. Although freeness tests on the screened mixture and on the stones give valuable information, the most important and the most accurate test is on the finished mixed stock from the blending chests.

* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Multnomah Hotel, Portland, Oregon, May 6-7, 1932.

[1] Member TAPPI, technical director, Hawley Pulp and Paper Company, Oregon City, Oregon.

Stone Perf

Individual stone performance can best be measured by frequent measurement of wood cut and the power used to cut this measured amount. Mills in which it is possible to make these measurements have found it a very accurate means of grinder control both from a production and a quality standpoint. If the wood cut is measured every two hours and the k.w.h. or kilowatt days determined for cutting that wood, there is shown the stones that are producing the most wood as well as those that are producing the best pulp. If a stone is grinding a large quantity of wood and the kilowatt hours per cord is low, that stone is usually producing freer or rougher stock than the stone whose production is less but requires more power per cord.

The ideal to work to in any groundwood mill is to have all of the stones making the same quality groundwood at all times. This ideal is never reached. If it is known at all times the production of each stone and the power consumption for this production, a means is afforded for smoothing out the production and quality.

Although this method of stone control is not absolutely accurate, yet it serves as a valuable aid to the operator in producing good quality pulp.

Other Tests

Besides the control of quality and power, which are the two most important factors in groundwood manufacture, there is also the control of color, consistency, screenings, and white water and screenings losses.

Color variation is caused by color differences in the wood used and darkening due to the contact of the pulp with iron parts. The control here would be nothing more or less than taking samples at intervals for color comparison. These colors can be graded and will serve as a guide in the selection of wood for grinding. The determinations on the screenings mixture will give an idea as to the expected color variation due to corrosion, if iron parts are used in the mill.

Consistency of the stock to the screens has a distinct bearing on the quality of the groundwood as well as on the screenings losses. If a consistency test is taken once an hour, it is possible to maintain a uniform screening mixture. With a uniform screening condition, any increase in screening waste is due to excessive screenings in the pulp itself. By checking the screenings loss every two hours, an accurate continuous record can be kept of the amount of coarse material in the pulp, which is wasted as far as good pulp is concerned.

The other two points of loss are the coarse sliver loss on the coarse initial screen and the white water loss. If the coarse material is collected and weighed, a figure is obtained for this loss, which can be controlled by closer setting of the pockets to the stones. As for the white water, a level recorder in the white water tank will indicate when and if there is an overflow at this point. With proper fresh water regulations, the level of this tank can be held at practically a constant elevation. Wastage of white water is not only important economically, but it represents a loss of the fine fibres of pulp that are a vital part of the quality.

If the words are true that "to measure is to economize," then technical control in a groundwood mill is important for technical control primarily is the measurement of production, quality, and losses.

Concentration of Waste Sulphite Liquor By Submerged Combustion*

By Kenneth A. Kobe[1]

As early as 1887 Oscar Brunler started work on apparatus in which the flame would burn directly in the liquid. These experiments were continued despite ridicule, and many designs are to be found in the patent literature. Other workers have entered the field and at the present time several small experimental installations have been made in England.

The present burners operate either on gas or fuel oil although it is reported that finely divided solids that can be made to flow or be blown through pipes and small openings can be burned. The fuel and air must be very thoroughly mixed and the ratio carefully controlled to give a mixture in which very little excess air is present. This combustible mixture must be passed through a high velocity tube where its velocity exceeds the rate of propagation of the flame so that no flash-back can occur. The combustible mixture is burned in contact with an incandescent surface or hot spot to insure complete combustion and to keep the flame burning.

Since the fuel burns under the surface of the liquid, the products of combustion and the steam are mixed together in a ratio dependent upon the temperature of the liquid. Dalton's law of partial pressures states that the total pressure is the sum of the partial pressures of the gases present. If we carry out evaporation by submerged combustion at atmospheric pressure it will be the total pressure, and since the gaseous products of combustion exert a certain pressure, the pressure of the water vapor will be less than atmospheric. Thus evaporation at atmospheric pressure takes place at a temperature below 100 deg. C. so that it is equivalent to carrying out the evaporation under a reduced pressure.

The advantages of such a method of evaporation are numerous. The greatest advantage is due to the combustion occurring in the liquid so that heat transfer takes place directly between the hot gases and the liquid to be heated, and since the gases are split up into many small bubbles presenting a large area, heat transfer between the hot products of combustion and the liquid is rapid and complete. The presence of the gaseous products, as explained above, reduces the boiling point of the liquid so vacuum evaporation is secured. Salts with an inverted solubility curve, as calcium sulphate, whose solubility decrease as temperature increases, precipitate from the liquid and settle to the bottom but do not interfere with the heat transfer as in a boiler where the scale deposits upon the

* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Multnomah Hotel, Portland, Oregon, May 6-7, 1932

[1] Department of Chemical Engineering, University of Washington, Seattle, Washington.

tubes through which the heat must be conducted. Since heat must no longer be conducted through metal, it is possible to construct the apparatus from suitable corrosion resisting material. The gasses from the burner agitate the liquid thoroughly.

Submerged combustion boilers were first applied to steam raising because of their much higher efficiency. Since a steam-gas mixture is produced an engine operating on this vapor cannot be run condensing, but the same thermal efficiency has been reported for an engine operating on this vapor as on steam with condensation. Such operation would be of great advantage in railroad operation. By far the greatest advantage is in the concentration of solutions of corrosive or easily decomposed material. Phosphoric acid has been concentrated in spite of its extremely corrosive nature, stoneware being used for the containers and the burners of special alloy. Much greater efficiency and longer life of equipment has been secured by this method. Liquids containing an easily decomposed substance are readily evaporated since the presence of the products of combustion is equivalent to evaporating under a partial vacuum. The application to liquids with suspended materials is readily seen. The application of submerged combustion to sulphite liquor immediately presents itself.

Waste Sulphite Liquor

The evaporation of waste sulphite liquor in a tube evaporator has been studied by W. L. Badger, who reported the following difficulties: (1) the extreme viscosity of the solution, (2) the very serious scale-forming tendencies of the liquor, (3) the corrosive nature of the unneutralized liquors. All of these difficulties are easily overcome by the use of submerged combustion. The high viscosity greatly decreases heat transfer rates in a tube evaporator so that artificial circulation must be employed. Calcium sulphate also precipitates out on the tubes, decreasing the heat transfer coefficient. The unneutralized liquor is highly corrosive. These difficulties are overcome by concentration with submerged combustion. The hot products of combustion are in direct contact with the liquid so that heat transfer is rapid and complete. The gases rising thru the liquid agitate it vigorously. Calcium sulphate no longer gathers on the heat transfer medium, but settles out on the bottom of the boiler where it may readily be removed. Corrosion may be resisted by the use of suitable alloys or coatings for the boiler which does not have the corrosion rate as when at a high temperature due to external heating.

Waste sulphite liquor has been a pollution nuisance due to the fact that no utilization of this material can be made at present. The first step in minimizing the nuisance is concentration and combustion of the organic solids. In the event of some use of the waste solid the first operation would probably be the concentration of the dilute material to give a product high in solids.

It was decided to carry out such concentration by submerged combustion at the Chemical Engineering Laboratory of the University of Washington. A small experimental boiler and burner were constructed to operate on city gas as the fuel. Waste sulphite liquor for the pulping of hemlock was secured from the Puget Sound Pulp and Timber Company and contained 12 per cent solids as it was drawn directly from the digesters. The unneutralized liquor was charged into the boiler and evaporation carried out to give a liquor with 35 per cent solids.

In view of the notorious foaming of sulphite liquor some difficulty was expected from this, however no foaming occurred and operation continued as with water. Sulphur dioxide was driven out of the solution during the first part of the evaporation. The liquor containing 35 per cent solids was then evaporated to 70 per cent solids without difficulty. More evaporation may be possible, however, our experimental burner would have to be redesigned to permit such evaporation. Thermal efficiency with water was better than 90 per cent and since no difference was noticed with the sulphite liquor the efficiency may be assumed as high, since we have not had time to calculate these later results. Since it has been reported that combustion of waste liquor containing over 50 per cent solids is self-sustaining, evaporation to this concentration can be carried out with no difficulty by submerged combustion with highest efficiency.

Corrosion In A Groundwood Pulp Mill*

By I. H. Andrews[1]

Groundwood and news print mills have been great users of iron pipe, fittings and equipment. While for the pre-war years it was probably the custom to use a genuine wrought iron pipe, since then there has been generally put into service the so-called wrought steel pipe and fittings. With the wrought iron pipe great service was secured; but with the wrought steel pipe not nearly the same service was attained, corrosion being very apparent.

Generally speaking, after the introduction of the wrought steel pipe, groundwood white water systems were gradually closed in, that is the large amount of fresh water make up was eventually reduced to the necessary minimum and there was considerable argument as to whether the short life of the wrought steel pipe was the result of the closing in of the white water system or lay in the pipe itself.

In the old days, with the open system and plenty of fresh water, acidity was not so much a factor in the groundwood mill; but the closing in apparently built up an acidity which introduced quite a corrosion problem. This acidity is developed at the grinders; but as far as is known just what the particular acids are and their development is not clear.

The following Table 1 gives an idea of the acidity which is developed in a closed-in groundwood mill. The acidity values were made of the water after filtering off the pulp.

TABLE 1—GROUNDWOOD ACIDITY: CLOSE-IN SYSTEM

	pH	Ml N/10 NAOH for 1,000 ML to 7 pH	Per Cent Dissociation
Pulp from Grinders.			
Fresh Water Showers			
Spruce	4.0—4.5	10.6—5.8	9.43—5.45
Fir	4.2—4.5	7.7—3.4	8.20—3.71
Hemlock	4.6— ..	3.9— ..	6.43— ...
White Water Showers			
Spruce	3.9—4.4	13.2—6.2	9.54—6.42
Fir	4.1—4.5	9.9—6.8	8.02—4.65
Hemlock	4.6— ..	4.8— .	5.23— ...
Pulp Screened and Thickened:	4.5—5.2	4.0—1.2	7.90—5.26

* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Multnomah Hotel, Portland, Oregon, May 6-7, 1932.

[1] Member TAPPI, chief chemist, Powell River Company, Ltd., Powell River, B. C.

The effects of such an acidity as noted above, with respect to corrosion, in a groundwood mill producing some 350 tons over-dry pulp per 24 hours, in which the pipes were mainly of the wrought steel type and cast iron parts were freely used, is noted in Table 2. Here there are data relative to the iron content of the pulp. It will be realized that "Thickened pulp after screening" refers to the groundwood pulp as ready for mixing with the sulphite.

TABLE 2—IRON IN GROUNDWOOD PULP. CLOSE-IN SYSTEM

	Ave. Per Cent Iron (on oven-dry basis)	Ave. Lbs. Iron Pick-up Per 24 Hours
In wood	0.0053	....
In thickened pulp after screening	0.020	101.5
Ditto Monday morning start-up	0.030	....

An analysis of a separate sample of the thickened groundwork stock showed that the disposition of the iron is as follows:

In pulp	0.0124	per cent
In white water carrying this pulp	0.0006	" "
Total	0.0130	" "

It is of interest to note that the main body of the iron is precipitated on the fibers. It is also a matter of passing interest that washing the pulp removes quite a little of its iron content.

Acidity Reduction Methods

According to published data on iron corrosion, it appears that oxygen concentration is a deciding factor in the rate of corrosion for a certain range of degree of acidity; but beyond this range the rate increases very rapidly, apparently this change takes place at different pH's depending upon the particular acid or acids. It would seem that in the case of the close-in ground wood system the acidity often gets into this rapid part of the corrosion curve, i.e., where acidity is a controlling factor in the curve. It would, therefore, appear as if something to obviate the corrosion could be accomplished by means of neutralization. Other than neutralization there is the use of corrosion resistant materials.

Experimentation along the lines of neutralization indicated that the pH of the system could not always be brought about 5.5 without danger of discoloration of the pulp. In other words, even before neutralization is reached, the alkaline earth bases link up with some compound or compounds to produce a noticeable darkening effect on the pulp.

As to means for lowering the acidity, lump limerock, powdered limerock and soda ash were tried. In the case of the lump limerock this was put into the white water system, but it was found to be unsatisfactory due to its becoming clogged with pulp and besides, too much space would have been required to produce any results. Powdered limerock and soda ash were easier to work with and in the experimentation, the latter was used, in the main, on this account. Table 3 shows the results obtained with its use, giving the effects on acidity and the iron pick-up. There is also the weight of soda ash used per 24 hours for the 350 ton mill.

TABLE 3—IRON PICK-UP DURING PERIODS OF PARTIAL NEUTRALIZATION—CLOSED-IN GROUNDWOOD SYSTEM

	Acidity of System	Pounds per 24 Hrs. Neutralizing Agent	Iron: In Pulp Per Cent Oven Dry Basis	Iron: Pick-up Per Cent	Iron: Pick-up Pounds per 24 Hours	Decreases: Pounds	Decreases: Per Cent
(1) Normal	5.0	....	0.0147	0.0086	60	..	75.0
Using sod. carbonate	6.2	825	0.0082	0.0021	15	45	75.0
(2) Normal	4.8	....	0.0195	0.0145	102	..	...
Using sod. carbonate	6.2	1425	0.0087	0.0046	32	70	74
(3) Normal	4.6	....	0.0190	0.1400	98	..	...
Using sod. carbonate	5.0	475	0.0145	0.0950	66	32	31

It will be noted that the reduction in acidity materially reduced the iron pick-up; but it was realized that partial neutralization was probably too risky to carry out and also it seemed that recourse to corrosion resistant materials would be much the better course to follow.

In the case of a 100 ton groundwood mill wherein the piping is all of wood stave, the fittings of copper and there being only a small amount of iron in the whole system, just what results are attained is shown in Table 4. Besides this there are data showing the reduction in iron pick-up for the 350 ton mill mentioned heretofore, after the program of iron replacement with wood stave and copper pipe and certain grinder and screen parts with chrome cast steel was on its way.

TABLE 4—IRON PICK-UP WITH CORROSION RESISTANT MATERIALS

	Iron (Per Cent): In Wood	In Pulp	Pick-up
Old system (iron)	0.0050	0.0200	0.0150
Old system (partially changed over)	0.0050	0.0124	0.0074
New system	0.0054	0.0059	0.0005

Corrosion Acceleration Tests

In order to have data on various materials as to their corrosion resistance with respect to the groundwood system for present and future use, it was deemed advisable to carry out accelerated corrosion tests. Accordingly the corrosion as found by subjecting test specimens to the splashing of hot spruce pulp at the grinder has been taken as a relative measure of how the material would act in the groundwood system.

Data Relative to Number of Specimens

Table 5 shows data relative to a number of specimens so exposed.

TABLE 5—CORROSION RESISTANCE TEST OF VARIOUS METALS IN CONNECTION WITH USE IN THE GROUNDWOOD SYSTEM

Specimen	Days Exposed	Depth of Corrosion Inches per 100 Days
(1) Wrought Steel Pipe	24	0.0310
(2) Wrought Iron Pipe	58	0.0068
(3) Sheet Copper	56	0.0029
(4) Tant Iron	48	0.0290
(5) Tant Nickel	106	0.0044
(6) Tant Copper	106	0.0040
(7) Toncan Iron	23	0.0164
(8) Nirosta	24	0.00003
(9) Cast Chrome Steel (unpolished)	211	0.0027
(10) Cast Chrome Steel (polished)	82	0.00085
(11) Inventor Stainless Steel	101	0.00122
(12) Monel	56	0.0005
(13) Aluminum	125	0.0036
(14) Cadmium Plated Steel—Coating almost completely removed in 22 days		

Note: In the case of the Tant metals (4, 5 and 6) one surface was polished comprising about 40 per cent of the total area, and for Tant nickel and Tant copper it would appear as if the corrosion were more active on the unpolished surfaces. Such being the case the relative corrosion rate for unpolished surfaces, with regards Tant nickel and Tant copper, would be probably 25 per cent higher than the figures given above.

Arguments Not Upheld

It seems to be a characteristic of the special steels exposed, Tant nickel, Tant copper, and cast chrome steel, that the polished surface is much more corrosion resistant. Corrosion that does take place here is of the pitting type.

It is notable how much more resistant is the old wrought iron pipe as against the wrought steel pipe now used and it would therefore appear that the arguments placing the blame for the inferiority of the latter on the acidity of the white water system are not upheld. Cast chrome steel and copper show up very satisfactorily and these are also standing up well in actual service. Some of the more expensive materials should also serve excellently.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

The charge for the photostat service is: 9 x 11 inches—18 cents per page, 18 x 11 inches—25 cents per page, 22 x 18 inches—70 cents per page, minimum charge, 50 cents.

Payment should be made upon receipt of invoice.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Sulphite Process

Process for the Removal of Acids from Sulphite Pulps. Paul Knichalik, Magdeburg. Ger. pat. 546,315 (Nov. 4, 1927).—The acids are removed in a specially constructed evaporator without the use of reagents.—J. F. O.

Process for the Manufacture of Sulphite Pulp. Ernst Schmidt, Arnau Ger. pat. 546,104 (Nov. 22, 1929).—The fibrous material is covered with a cooking liquor which contains the usual calcium and magnesium bisulphite and one or more water soluble sulphates which does not belong to the alkali or earth alkali groups—J. F. O.

Process for the Manufacture of Concentrated or Liquid Sulphurous Acid from Gases Containing Sulphur Dioxide. A. S. Malmindustrie, Oslo. Fin. pat. 13,689 (April 20, 1928).—The sulphur dioxide is absorbed in a liquid under pressure and from this it is removed by decreasing the pressure or heating or both. The conditions for absorption, especially pressure and temperature, are such that the percentage volume content of sulphur dioxide in the gas mixture to the percentage weight of sulphur dioxide absorbed in the liquid is in the relation of 3; 2, so that, when the gas mixture contains 18 per cent by volume sulphur dioxide, a sulphorous acid solution is obtained which contains at least 12 grams of sulphur dioxide per 100 grams of solution. The compression of the gas mixture takes place in two or more stages with intermediate cooling.—J. F. O.

Process of the Production of Sulphur Dioxide in Combustion Ovens. Cellulosetechnische Gesellschaft m.b.H., Alfeld. Ger. pat. 532,533 (Dec. 11, 1930).—Naturally pure sulphur is liquified and evaporated in a slowly rotating sulphur oven. The sulphur gases thus produced are then led into a second specially constructed rotating oven where so much oxygen is added that the temperature rises to 800 to 900 deg. C. The heat from this second rotating oven heats a surface upon which very cheap sulphur containing substances are strewn. The gases thus formed in the specially constructed oven and combustion chambers prevent the formation of flowers of sulphur which causes so much difficulty in former designed ovens.—J. F. O.

Process for the Manufacture of Pulp. Max Steinschneider & Aktiengesellschaft für Zellstoff und Papierfabrikation, Aschaffenburg. Ger. pat. 540,052 (April 30, 1927).—The penetration of the sulphite liquor into the wood containing rosin is made easier by the presence of an emulsified organic solvent in the sulphite liquor. The raw acid used for the cooking is mixed with the liquor from a preceding cook in order to attain the most complete emulsion of the solvent possible.—J. F. O.

Process for the Manufacture of Pure Sulphur Dioxide. Allgemeine Elektricitats Gesellschaft, Berlin. Ger. pat. 539,640 (June 22, 1930).—In order to manufacture a dry sulphur dioxide, free from sulphur, and which contains at the most 1/1000 per cent of sulphur trioxide, from sulphur and oxygen; the oxygen or air is conducted in a heated condition in the form of fine bubbles through hot liquid sulphur.—J. F. O.

New Sulphur Burner. Raymond F. Bacon. Paper Trade J. 94, No. 13:31-35 (March 31, 1932); Pulp Paper Can. 13:78-80 (April, 1932).—A brief description of the construction, operation and performance of the new sulphur burner of the Texas Gulf Sulphur Co., together with an outline of the advantages claimed for it.—A. P.-C.

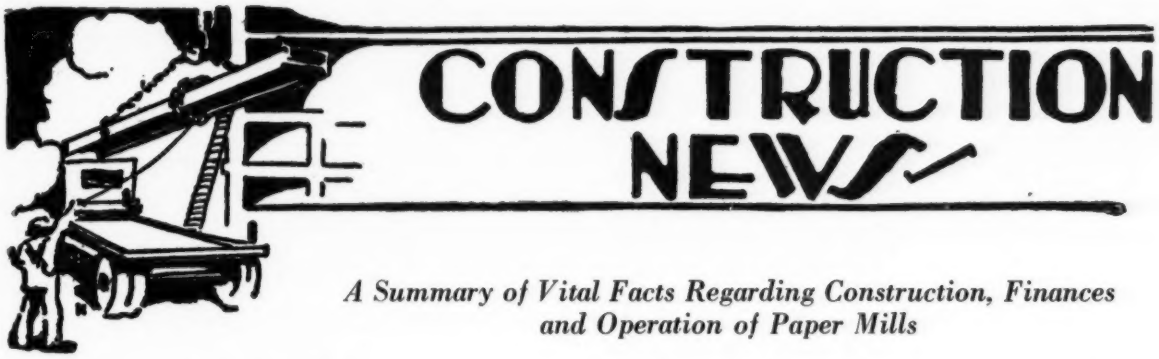
Sulphur Burning Equipment for Sulphite Mills. Asbjorn Aasen. Paper Trade J. 94, No. 15:39-42 (April 14, 1932).—An analysis of the factors affecting the efficiency of the production of sulphur dioxide in sulphur burners, discussing their application to equipment at present in use in sulphite mills, indicating possible improvements.—A. P.-C.

Pulping Resinous Wood. Gotthard Rosen. Fr. pat. 715,353 (Aug. 7, 1930).—Resinous wood which is to be delignified is submitted in chips to the repeated action of milk of lime and then treated with a current of sulphur dioxide. The treated chips are washed and subjected to the sulphite process.—A.P.-C.

Pulping Process. George A. Richter assignor to The Brown Co. Can. pat. 319,448 (Feb. 2, 1932).—Wood chips are cooked for 3 to 4 hours at 250 deg. F. in a liquor containing 5 per cent free and 1 per cent combined sulphur dioxide (the presence of combined sulphur dioxide in the form of sodium bisulphite or calcium bisulphite is preferable). The spent acid sulphite liquor is drained off, and the chips may be washed. The washed chips are treated for 4 to 6 hours with a boiling 0.2 to 1 per cent solution of sulphuric acid, which reacts principally on the pentosans. The chips are washed free from mineral acid solution and cooked at an elevated pressure in an alkaline liquor to complete fiber liberation.—A. P.-C.

Fiber Liberation from Cellulosic Materials. George A. Richter assignor to Brown Co. U. S. pats. 1,833,975 and 1,833,976 (Dec. 1, 1931).—*No. 1,833,975*—Material such as wood is digested in a sulphurous acid solution containing 0.2 to 2.0 per cent of combined sulphur dioxide as a soluble sulphite and 2 to 4 per cent of a soluble sulphate. *No. 1,833,976* relates to digestion of chemical wood pulp in raw condition in a saponaceous reagent such as an alkaline soap solution in order to remove resinous substances.—A. P.-C.

Production of Cellulose. Gérard de Bartillat. Fr. pat. 39,090 (April 11, 1930); addn. to 692,105.—The reaction of the principal patent is accelerated by increasing the pressure and using an excess of sulphur dioxide at least equal to 25 per cent of the amount of water used.—A. P.-C.



A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Grand Rapids, Minn.—The Blandin Paper Company, First street, has completed plans for extensions and improvements in power plant at mill, to include installation of additional equipment. General contract for building has been let to the James Leck Company, 211 South Eleventh street, Minneapolis, Minn., and work will be placed under way at once.

Holyoke, Mass.—The Whiting Paper Company, Holyoke, has resumed operations at its local No. 3 mill, following shut down for about a month. The curtailment was due to a controversy with the Holyoke Water Power Company over certain water rights, in connection with water supply for plant. The mill will give employment to about 250 persons and will be continued in production for an indefinite period.

Hartford, Conn.—The City Paper Company, 218 State street, has filed plans for alterations and improvements in storage and distributing plant at location noted, including interior work. General contract has been let to B. N. Benewitz, 235 Cornwall street, Berenson & Moses, Hartford, are architects.

Portland, Ore.—The Pacific Paper Materials Company, 304 North 15th street, has taken out a permit to make improvements and carry out certain repairs in storage and distributing plant at location noted. General contract for work has been awarded to Frederick Schultze, 255 East Thirty-second street, Portland.

Mount Holly Springs, Pa.—The Mount Holly Paper Company is arranging for early increase in production schedule at local mill, which has been running at about 40 per cent capacity for some weeks past. Company has received a large contract from State Government, covering annual supply of writing papers, and work on order will soon begin. It is said that present working quota will be increased to about 100 employes in different departments of the plant; about 60 operatives have been engaged in recent weeks.

Hoboken, N. J.—The Hinde & Dauch Paper Company, Decatur street, Sandusky, Ohio, is making awards for certain features of work in connection with new plant on site recently acquired at Hoboken, on block bounded by Madison, Monroe, Ninth and Tenth streets. Award for a radial brick chimney for power unit has been let to the American Chimney Corporation, 147 Fourth avenue, New York; a contract for a crane has been given to the Northern Engineering Works, Atwater street, Detroit, Mich. Other contracts are scheduled to be placed at an early date. The plant will consist of main one-story unit, 180 x 800 feet, and two-story office building, 80 x 180 feet. It will be used for the manufacture of corrugated paper shipping containers and boxes. Otto Randolph, Inc., 53 West Jackson boulevard, Chicago, Ill., is engineer and general contractor. Entire project is estimated to cost close to $400,000, with equipment.

Fort Wayne, Ind.—The Board and Paper Products Company, recently organized with a capital of $50,000, is said to be planning operatior of a local plant for the manufacture of paperboard specialties. Edmund H. Miller and Arthur G. Gerding, both of Fort Wayne, head the new organization.

Ampthill—The duPont Cellophane Company, Ampthill, near Richmond, Va., is holding to regular production schedule at its local cellulose material plant, giving employment to a total working force of about 500 persons. The plant has been in continuous operation since it was built in 1930. The duPont Rayon Company, with mill on adjoining site, is resuming production after a suspension of about two months. A number of improvements have been made in equipment and machinery during the curtailment. Workers are being reinstated, and it is expected to develop a total quota of about 500 people for operations.

Akron, Ohio—The Palmer Match Company, Akron, has engaged Hannah & Sterling, Publication Building, Pittsburgh, Pa., architects, to prepare plans for proposed new addition to plant for the manufacture of book matches, previously referred to in these columns. Branch of output is a new one for the company and new works will include a paper-converting division for production of match books. The entire project will cost over $250,000, with equipment, according to latest estimates. Company maintains offices in the Chamber of Commerce Building, Pittsburgh, where J. L. Walker, president, is located. C. G. Allen is superintendent at the mill.

Chicoutimi, Que.—In connection with the reopening of the ground wood pulp mills of the Chicoutimi Pulp Company, Chicoutimi, the company is said to be closing contract for about 30,000 tons of material for shipment to interests in Great Britain; it is reported that close to 10,000 tons of pulp will also be exported to France. The plant has a rated capacity of about 350 tons of ground pulp wood per day. The Government of Quebec has recently issued a decision to exempt the plant from water tax for a period of five years; this tax, heretofore, has averaged about 85 cents per ton of pulp wood.

Sault Ste. Marie, Ont.—The Abitibi Power and Paper Company, Toronto, Ont., has advanced production schedule at its local mill, and is now running on a full time basis until further notice. The plant has been operated on a four to five-day week schedule for some time past.

Ostrand, Sweden—In connection with its new sulphate mill at Ostrand, the Swedish Wood Pulp Company (Svenska Cellulosa Aktiebolaget), Stockholm, Sweden, plans installation of equipment in a fourth and last unit at a later date, or as soon as conditions justify. The first three sections of the mill have been equipped and are said

to represent an investment of about 25,000,000 crowns (about $6,700,000). Each unit has a rated output of 25,000 tons per annum, making a total of 100,000 tons when the plant is entirely completed.

New Companies

New York, N. Y.—The Berg Envelope Company, Inc., has been incorporated with a capital of 200 shares of stock, no par value, to operate a paper converting plant for the manufacture of envelopes and other paper stocks. Incorporators include Alfred Stoller and Milton Brachfeld, 11 West Forty-second street, New York. Last noted is representative.

Indianapolis, Ind.—Swing-Tag Systems, Inc., has been incorporated with a capital of 100 shares of stock, no par value, to operate a paper converting plant for the manufacture of tags and kindred paper goods. I. H. Gray, Indianapolis, is the principal incorporator.

Boston, Mass.—Printers' Envelope Company, 315 Centre street, West Roxbury, has been organized by officials of the Boston Envelope Company, same address, to manufacture commercial envelopes and kindred lines.

New TAPPI Members

The following elections to membership in the Technical Association of the Pulp and Paper Industry are announced:

Bernard Bornstein, technical advisor of the pulpstone division of the Norton Company, Worcester, Mass., is a 1921 graduate of the University of Maine. From 1922 to 1927 Mr. Bornstein was employed in groundwood operating research work for the Kimberly-Clark Corporation, Neenah, Wisconsin. In the March 7, 1929 issue of the PAPER TRADE JOURNAL there was a paper by Mr. Bornstein entitled, "Relation of Pulpstone Grit to Quality of Paper," and in the January 14, 1932 issue, an article, "Practical Groundwood Control."

Lawrence Gideon, student, New York State College of Forestry (Class of 1932) has worked at the Niagara Falls mill of the International Paper Company and at Fulton, N. Y. with the Oswego Falls Corporation.

Robert T. Petrie, erector for the Minton Vacuum Dryer Corporation, attended school in Scotland and has been employed as an engineer in Canada and New Zealand and with Price Bros. & Co., Ltd., in Kenogami, P. Q.

Christopher L. Reece Jr., chemist for the Whiting Paper Company, Holyoke, Mass., was formerly chemist for the Fiberloid Corporation in Indian Orchard, Mass., and for the Rag Content Paper Manufacturers Association in Springfield, Mass.

Arthur G. Rendall, research chemist at the Kalamazoo Works of Morland and Impey Ltd., Northfield, Birmingham, England, is a graduate of the University of London.

Forrest A. Simmonds, associate chemist at the Forest Products Laboratory, Madison, Wisconsin, has been transferred to Active membership in the Technical Association.

Hoberg Paper Changes Quarters

The Hoberg Paper and Fibre Company has moved its Chicago office from the Wrigley Building, where it has been located for the past ten years, to Room 1505-A, in the new Merchandise Mart Building. The new location brings the Chicago office and its manager, A. H. Bernhart, closer to the majority of all Chicago paper jobbers, and also the office arrangements afford the opportunity to display the well known Evergreen products of the company in a special show window opening on the corridors of the 15th floor.

New York Trade Jottings

Arthur L. Dawe, of the St. Maurice Valley Sales Company, Montreal, Que., was a New York visitor last week.

* * *

The Paper Stock and Pulp Traffic Bureau is a new organization formed by Charles J. Browne at 27 William street, New York.

* * *

Great Eastern Packing and Paper Stock Corporation, of 250 Park Avenue, New York, has applied for membership in the National Waste Material Dealers Association, Inc.

* * *

Richard A. Callahan, assistant cashier of the First National Bank of Hoboken, has been appointed receiver for the Gatti Paper Stock Corporation, of 122 East 42nd street, New York.

* * *

Beckhard-Simfred Company, paper novelties, has been incorporated under the laws of the State of New York with a capital stock of 650 shares common. Weschler & Kohn, of 70 West 40th street, New York, were the attorneys.

* * *

Union Card and Paper Company, of 45 Beekman street, New York, has just issued its Price List No. 40 for August. This elaborate catalog lists paper, card board and envelopes of every description and contains a wealth of valuable information.

* * *

J. M. Berger, president of the Forbes Paper Company, of 362-4 West Broadway, New York, is a proud grandfather for the first time. A baby daughter was born on Sunday, July 10, to his daughter and son-in-law, Dr. and Mrs. M. B. Bangel.

* * *

The Fifteenth Annual Outing of the Metropolitan Bag and Paper Jobbers Association will be held at the Narragansett Inn, Lindenhurst, Long Island, on Thursday, August 18. Automobiles will leave the Borough Hall, Brooklyn, N. Y., at 9:30 a. m. Included in the day's fun and good cheer will be swimming, athletic events, baseball and other games. Prizes will be awarded. Tickets, which cover all meals and entertainment, have been reduced to $7.00 each and may be obtained from Nelson Berger, of the Forbes Paper Company, 362 West Broadway, New York. Telephone Walker 5-3875; or the chairman, George W. Batz, 2 Lafayette street, New York.

Paper Industry Leads in Safety Work

PORTLAND, Me., July 18, 1932.—One of the features of the spring meeting of the Northeastern Division of the American Pulp and Paper Mill Superintendents' Association which was held at the Belgrade Lake House was the address by W. J. Brennan, Safety Engineer of the State Department of Labor and Industry, who praised the pulp and paper industry in Maine as the outstanding leaders in safety work among the industries of the State. He pointed out that some industries in Maine are involved in a 24 per cent overhead cost due to lack of measures and education in safety. The speaker said that education of the workers to the value of safety is the biggest factor, for only one in every 10 accidents is due to mechanical causes. He termed money spent for safety devices as a very good investment.

Another feature of the meeting was the address by Prof. William J. Wilkinson of Colby College who delivered an interesting talk on the economical and political situation.

Hollander Development

By L. E. Randecker[1]

During the past few years Jordans and various types of rod mills and hydrators have been introduced to the trade to supplant, either wholly or in part, beaters. The principal reason for the use of Jordans has been a saving in horsepower hours per ton. Rod mills and hydrators have not been accepted so generally as Jordans and while claims of improvement both in economy and quality of product are made, installations so far have not been general.

Still Being Refined

Parallel to the development of other hydrating methods, the Hollander is still being refined. There is a widespread feeling that the present day Hollander, will never be entirely replaced by the Jordan or rod mill. In fact, if the Hollander can be improved in efficiency so that it can compete with Jordans or rod mills, it is probable that it would supplant in many instances recent installations of this type of equipment.

In fine papers a batch system is essential, also a flexibility of control and a range of beating effect is necessary, which flexibility is more readily obtained in the Hollander than in present competitive machines. Therefore, the beater must be retained in the manufacturing process, in spite of its apparent deficiencies.

The most obvious point of power consumption in the beater is in its circulatory system and many writers have called attention to the long travel around the trough and the relatively short action between roll and bedplate. Based upon experiments made by the writer, he calculated that if each fibre were beaten equally, the amount of action it would receive each hour between the roll and the bedplate would amount in time to less than one half second.

It is generally admitted that action between the roll and bedplate is not all the beating action obtained in the Hollander. In addition to the roll action, there occurs a rubbing of the fibres on each other or against the walls of the tub and within the cells of the roll bars. These actions of the beating cycle, however, are generally considered of secondary importance to the action between roll and bedplate.

The Trend in Efficiency

The trend toward improved beater efficiency has been in tub design, increased roll pressures and an increase in tub density. The last factor, particularly, offers quite a field for improved efficiency and much has been written about it. With an increase in tub density, each bar, when passing through the bed of stock, picks up a greater number of fibres and carries them to the bedplate. If beating consisted of the roll action only, it could be assumed that beating is directly in proportion to the number of fibres carried per bar to the bedplate.

It is obvious that a very small proportion of the pulp circulated by means of the roll comes in contact with the bedplate. By far, the greatest percentage of fibre is carried in the interstices between the fly bars. While confined in this interstice, it is acted upon by eddy currents and some hydrating action results threfrom. It is possible that for this reason a beater may circulate too fast in proportion to its bedplate area, thereby decreasing instead of increasing its overall efficiency.

With a full realization that the Jordan and the rod mill does not give the same beating effects as a Hollander, the writer arrived at the conclusion that any machine assigned to duplicate such results must contain the four main components of the beater, that it, the tub, roll, bedplate and circulating batch system.

Such a beater he set about to develop. The first step was to run a series of tests on a modified backfall type Hollander. By these tests it was shown that 55 per cent of the total power consumed by the beater was used for circulating the stock over the backfall and around the tub. This percentage, of course, varies with grades of stock and mill conditions but in any event, it is a large proportion of the whole.

An Analysis

An analysis of this figure indicated that this 55 per cent of the total power included the following actions:—

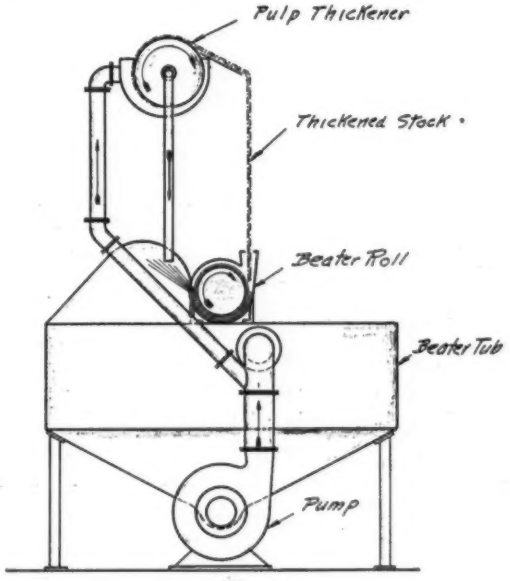


Fig. 1.
Diagrammatic Arrangement of Proposed Hollander.

1. Overcoming acceleration of the stock between the trough speed and roll speed as it is picked up by the roll.
2. By accelerating several times from Zero to roll speed the amount of stock carried over by the roll under the hood.
3. By pumping over the backfall and around the trough.
4. By breaking action of the stock in front of the roll, as well as that stock accumulating continuously between the roll and the backfall.

If, by this analysis, he arrived at the correct assumption, the problem would appear rather clearly and the method of attack obvious. To improve the efficiencies of these operations, he should, among other things—

a. Remove the duty of the roll to accelerate the stock by delivering stock to the roll at or near the peripheral speed of the flybar.

b. Provide an efficient means to pump stock other than by the roll and remove the backfall entirely from the tub, thereby relieving the roll of any pumping duty.

c. Pump only that portion of stock to the roll that can be treated between roll and bedplate.

[1] Purchasing Engineer, Hammermill Paper Co., Erie Pa.

d. Take the roll entirely out of the body of stock, to eliminate the braking effect of the stock on the roll.

e. Design the roll with small cells so that no excess pulp need be carried around the roll. As stated above, only a very small percentage of stock circulating around the trough is acted upon between the flybars and the bedplate. Only this portion of the stream need be delivered to the roll, the surface of which could be lava or the equivalent. The balance of the stream could be circulated and bypassed around the roll.

f. Beat at a maximum density. Based upon the fact that only a small proportion of the stock need be passed between the roll and the bedplate, thickening means should be provided for this portion of the pulp stream. It could be thickened from the trough density of four per cent, which is a convenient circulating density, to ten, fifteen or twenty per cent, if need be and then delivered to the roll. After passing through the roll, it would meet again with the main body of stock and circulate again at four per cent.

g. Adequate circulation must be maintained to obtain good mixing, and tub conditions must approximate that of the Hollander. This can be done efficiently by circulating that per cent part of the stock not pumped to the roll for treatment at 4 per cent consistency or less.

All the points mentioned are not novel. The Taylor and Tower beaters have the roll relatively high with respect to the tub. These beaters also employ a pump as a circulating medium.

Increased Density

The thought of increased density has been developed in several recent beaters although the use of high density beaters has not become so common as might be expected.

Several of the other points, however, such as introducing the stock to the roll at the roll speed, increasing the density of treating only that portion of stock that passes between the roll and bedplate and providing a bypass for the remainder of the flow have not been given, to the writer's knowledge, general consideration.

With these thoughts in mind, the writer developed and patented a beater which resulted in a design shown diagrammatically in Fig. 1. From a study of this diagrammatic sketch you will see that we have maintained the beater roll, bedplate, tub and circulating system. An efficient stock pump is used to circulate the stock at three or four per cent consistency. A small part of the pulp is pumped to a point sufficiently high above the roll so that it can be thickened and dropped freely by gravity between the roll and bedplate. The remainder, or greater portion of the stock, is circulated for mixing only at a relatively low head and low consistency, thereby decreasing the power required by the pump to circulate and also improving the mixing conditions in the tub. Water removed by the thickener drops through a barometric leg into the tub where it joins the general flow.

Relatively Small Roll

The roll itself is relatively small and running at a relatively high rpm. An 18 inch diameter roll is sufficient and to increase the capacity of the beater it is necessary to increase only the width of the face. A 1000-lb. tub beater can have a roll with 30 inch face and a 2,000-lb. beater, a roll with a 60 inch face. The speed of the roll, because of the fact that it has practically no stock carrying capacity, can be run at a higher peripheral speed than ordinarily used in the Hollander and can be direct-connected to a motor, which motor preferably should be direct-current so that the roll speed can be varied as required. The tub can be designed of relatively small area and great depth, thereby decreasing floor space.

The pump preferably should be connected to a variable speed motor so that the rate of circulation with respect to the roll action could thereby be varied. The quantity passing through the thickener can, of course, be varied by common means.

It is quite evident, therefore, that the unit has unique and apparently valuable characteristics and that a range of beating effects can quite economically be obtained by manipulating the relative speeds of the roll, pump and thickener.

BAG PLANT BEGINS OPERATIONS

(Continued from page 11)

ground system. The park was developed during the last few years from an unsightly dump heap near the company's mill, and heretofore has been restricted to the use of employees. It now becomes of public use.

Formal presentation was made to the city during a public band concert, at which William F. McCloskey, representing J. M. Conway, president and general manager of the company, tendered the use of this beautiful recreation spot to the people. The park bears the "Evergreen" name, the trade-mark used on Hoberg products.

Arthur M. Schmalz, production superintendent of the Thilmany Pulp and Paper Company, Kaukauna, Wis., was injured severely last week when struck by an automobile. The accident happened at Little Chute, Wis., while he was assisting a clergyman whose car was disabled. He was knocked to the pavement by the passing automobile, causing a mild concussion of the brain and numerous bruises. He has recovered sufficiently to leave the hospital.

John N. Cotter, capitalist and for many years a member of the board of directors of the Grandfather Falls Paper Company, Merrill, Wis., died last week at Merrill. He was 85 years old. Mr. Cotter formerly was one of the large timber operators of Northern Wisconsin and supplied large amounts of pulpwood to mills. He was also president of the Merrill Railway and Light Company, the utility supplying power to some of the Wisconsin River Valley mills until acquired by the Wisconsin Valley Electric Company. He was associated with many other business enterprises, and served as mayor of Merril at one time.

Dilts' Beaters for Quincy Mill

QUINCY, Ill., July 18, 1932—Several carloads of machinery labeled "Dilts Paper Mill Beaters" have arrived at the Central Fibre Products Company's mill here for remodeling the beater room equipment. These cars are from the Dilts Machine Works of Fulton, N. Y., whose erecting foreman is now at the mill setting up and concreting in the first beater of the lot.

It is expected that the work of installation will be completed within a few weeks and the beater capacity greatly increased thereby.

It is understood that the company hopes for steady operation of the mill throughout the summer months and has good business in sight in the future.

Completes Reforestation

LYONS FALLS, N. Y., July 18, 1932—The reforestation committee in Lewis county has just completed the reforestation of about 650 acres of land. The county forests now comprise about 2,000 acres upon which nearly 3,000,000 trees have been planted. The project recently completed was among the largest in Northern New York and compares favorably with the work done in other sections. The plantings made were of spruce, cedar and larch.

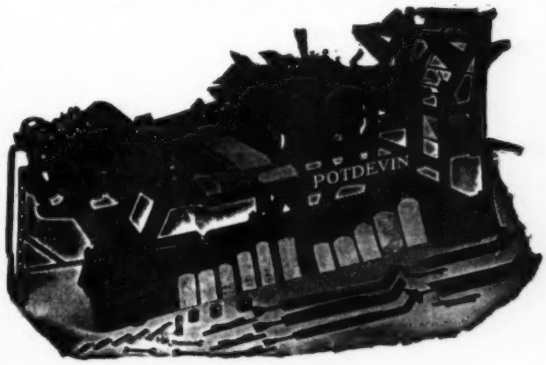
WOOD PULP
AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

NEW **POTDEVIN** PRINTING

SPECIALTY BAG MACHINERY



(Model 290) 2-Color Printing Flat and Square
40 Other Models

PAPER BAG MACHINERY

POTDEVIN MACHINE CO.

1223 38th Street, Dept. 4, Brooklyn, N. Y., U. S. A.
Phones: Windsor 1700-1701-1702

"Grif-Ho"
DISPENSING CABINETS
AND
FIXTURES
THE STANDARD OF THE PAPER TRADE
GRIFFITH-HOPE CO.
WEST ALLIS, WIS.

Glens Falls Machine Works
GLENS FALLS, N. Y.

Manufacturers of

IMPROVED ROGERS AND SPECIAL WET MACHINES

STANDARD WET MACHINES

GLENS FALLS ROLLING ACTION FLAT SCREEN

THE A. D. WOOD SAVEALL, THICKENER, WASHER AND WATER SCREEN

GLENS FALLS DECKER AND DECKER WASHER

GLENS FALLS ROTARY SULPHUR BURNER

PULP GRINDERS, THREE OR FOUR POCKET (Roller Bearings)

Ask us about the
OLIVER-ROGERS WET MACHINE

RAY SMYTHE, 301 PARK BLDG., PORTLAND, ORE.
Western Representative

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 16, 1932

CIGARETTE PAPER

Champagne Paper Corp., Paris, Havre, 40 cs.; American Tobacco Co., Paris, Havre, 150 cs.; Standard Products Corp., Paris, Havre, 50 cs.; Liggett & Myers Tobacco Co., Paris, Havre, 9 cs.; Saybusch Paper Manfg Co., Pulaski, Gdynia, 48 cs.

WALL PAPER

N. Y. Trust Co., Berlin, Bremen, 3 cs.; ——, Port Hobart, London, 1 bl.; Irving Trust Co., Hamburg, Hamburg, 21 cs.

PAPER HANGINGS

Whiting & Patterson Co., Inc., Aquitania, Southampton, 1 cs.

NEWS PRINT

Jay Madden Corp., Berlin, Bremen, 640 rolls; Perkins Goodwin & Co., Berlin, Bremen, 64 rolls; Perkins Goodwin Co., American Shipper, Hamburg, 354 rolls; Perkins Goodwin & Co., Milwaukee, Hamburg, 378 rolls; Chase National Bank, Drottningholm, Gothenburg, 202 bls.; Jay Madden Corp., Minnequa, Kotka, 107 rolls; ——, Minnequa, Kotka, 375 rolls; ——, Hamburg, Hamburg, 219 rolls.

PRINTING PAPER

E. Dietzgen & Co., Statendam, Rotterdam, 18 cs.; C. Steiner, Berlin, Bremen, 7 cs.; ——, American Shipper, Hamburg, 20 bls., 66 rolls; Globe Shipping Co., Pennland, Antwerp, 5 cs.; S. H. Pomerance, Port Hobart, London, 4 cs.; Martin & Bechtold, Milwaukee, Hamburg, 8 cs.; E. Dietzgen & Co., Hamburg, Hamburg, 7 cs.

WRAPPING PAPER

Yardley & Co., Port Hobart, London, 7 cs.; Natl. Pulp & Paper Co. Inc., Drottningholm, Gothenburg, 1 cs.; Louvre Frame Co., Drottningholm, Gothenburg, 2 rolls.

FILTER PAPER

A. Giese & Son, Statendam, Rotterdam, 3 cs., 1 bl.; H. Reeve Angel & Co. Inc., Port Hobart, London, 10 cs.

FILTER MATERIAL

J. Manheimer, Columbus, Bremen, 100 bls.

FILTER MASSE

J. Manheimer, Columbus, Bremen, 50 bls.

DRAWING PAPER

Keuffel & Esser Co., Port Hobart, London, 2 cs.

TRANSFER PAPER

F. L. Kramer & Co., Berlin, Bremen, 14 cs.; Rohner Gehrig & Co., Columbus, Bremen, 2 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Adriatic, Liverpool, 27 cs. (duplex); C. W. Sellers, Columbus, Bremen, 4 cs.; C. W. Sellers, Hamburg, Hamburg, 3 cs.

PARCHMENT PAPER

Intl. Acceptance Bank, Hanover, Bremen, 10 cs.

BASIC PAPER

Globe Shipping Co., Columbus, Bremen, 12 cs.

PHOTO PAPER

American Express Co., Hamburg, Hamburg, 12 cs.

METAL COATED PAPER

——, American Shipper, Hamburg, 13 cs.; K. Pauli Co., Hamburg, Hamburg, 7 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Pennland, Antwerp, 22 cs.

COATED PAPER

Intl. Forwarding Co., Milwaukee, Hamburg, 1 cs.; Happel & McAvoy, Milwaukee, Hamburg, 10 cs.; Freedman & Slater, Hamburg, Hamburg, 1 cs.; Happel & McAvoy, Hamburg, Hamburg, 2 cs.

BARYTA COATED PAPER

Globe Shipping Co., Columbus, Bremen, 84 cs.

SILK PAPER

P. J. Schweitzer, Exochorda, Marseilles, 22 cs.

COLORED PAPER

F. Murray Hill, American Shipper, Hamburg, 4 cs.

TISSUE PAPER

F. C. Strype, Adriatic, Liverpool, 1 cs.; W. J. Byrnes, Aquitania, Southampton, 2 cs.

BRISTOL BOARDS

Keuffel & Esser Co., Port Hobart, London, 2 cs.

WRITING PAPER

Globe Shipping Co., Paris, Havre, 1 cs.

CARD BOARD

Gevaert Co. of America, Pennland, Antwerp, 2 bxs.; American Express Co., Hamburg, Hamburg, 200 cs.

RAW CARD

F. C. Strype, Berlin, Bremen, 34 cs.

STRAW BOARD

Massa Paper Co., Statendam, Rotterdam, 564 pkgs.

MISCELLANEOUS PAPER

Hensel Bruckman & Lorbacher, Berlin, Bremen, 8 cs.; R. Wilson Paper Corp.; Transylvania, Glasgow, 2 rolls, 12 cs.; Tiffany & Co., Lafayette, Havre, 1 cs.; Remington Rand, Inc., Milwaukee, Hamburg, 8 cs.; The Borregaard Co. Inc., Drottningholm, Gothenburg, 646 rolls, 50 bls.; H. Reeve Angel & Co. Inc., Drottningholm, Gothenburg, 11 bls.; Japan Paper Co., Drottningholm, Gothenburg, 2 cs.; Hensel Bruckman & Lorbacher, Columbus, Bremen, 2 cs.; M. C. Amico, Paris, Havre, 2 cs.; Keller Dorian Paper Co., Paris, Havre, 4 cs.; W. Bersch, Hamburg, Hamburg, 7 cs.

RAGS, BAGGINGS, ETC.

Amtorg Trading Corp., Minnequa, Leningrad, 187 bls. waste; ——, Cypria, Barcelona, 60 bls. bagging; E. J. Keller Co. Inc., Hamburg, ——, 29 bls. rags; E. J. Keller Co. Inc., United States, ——, 75 bls. rags; Van Oppen & Co., Sacandaga, Rotterdam, 223 bls. bagging.

HIDE GLUE

——, Berlin, Bremen, 50 bags; ——, Hamburg, Hamburg, 100 bags; ——, American Shipper, Hamburg, 1560 bags.

Why not get the best that can be had?

H. & M.

COLORS FOR PAPER

have proved they are the best and are being used daily by the greatest number of paper mills.

Service and Quality will tell

HELLER & MERZ CORPORATION

286 Spring Street, New York, N. Y.

BOSTON 35 Hartford St. | CHICAGO 146 W. Kinzie St. | SPRINGFIELD, MASS. 40 Albert St.

PHILADELPHIA—South St. and Delaware Ave.

Factories—NEWARK, N. J. and BOUND BROOK, N. J.

A UNIT OF AMERICAN CYANAMID COMPANY

ALUMINUM SULPHATE

(PAPER MAKERS' ALUM)

THE Standard Purity of this Company's product is maintained in an uncompromising degree, regardless of whether successive deliveries are from one or various of the Company's Works.

GENERAL CHEMICAL CO.

40 Rector Street, New York, N. Y.

Cable Address: Lycurgus, N. Y.

Sales Offices: Buffalo, Chicago, Cleveland, Denver, Los Angeles, Philadelphia, Pittsburgh, Providence, San Francisco, St. Louis.

In Canada: The Nichols Chemical Company, Ltd. Montreal, P. Q.

REG. U.S. PAT. OFF.

Also BAKER & ADAMSON C.P. ACIDS..REAGENTS *and* FINE CHEMICALS

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, Index Bristol, Post Card and Label Papers

High Grade Coated Book

also

KRAFT WRAPPING AND KRAFT ENVELOPE

Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

230 Park Ave. New York | 35 East Wacker Drive Chicago

503 Market St., San Francisco, Cal.

Sixth and Chestnut Sts., Philadelphia, Pa.

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON, MASS.

Woolen manufacturers since 1856

OLD ROPE

Banco Coml Italiane Trust Co., Statendam, Rotterdam, 50 coils; W. Steck, Statendam, Rotterdam, 78 coils; W. Steck, H. Jaspar, Antwerp, 38 coils; W. Steck, Drottningholm, Gothenburg, 50 coils.

CASEIN

D. C. Andrews & Co., Milwaukee, Hamburg, 60 bags.

WOOD PULP

A. P. W. Pulp & Power Co., Kem, Sheet Harbor, 5306 bls. mechanical pulp, 1186 tons; E. J. Keller Co. Inc., American Shipper, ——, 357 bls. wood pulp, 55 tons; ——, American Shipper, Hamburg, 337 bls. wood pulp, 52 tons; J. Andersen & Co., Drottningholm, Gothenburg, 375 bls. sulphite; Johaneson Wales & Sparre, Inc., Drottningholm, Gothenburg, 250 bls. sulphate; Castle & Overton, Inc., Minnequa, Wiborg, 2501 bls. wood pulp, 500 tons; ——, Minnequa, Kemi, 1052 bls. sulphate, 175 tons; 150 bls. sulphite, 25 tons; Perkins Goodwin & Co., Minnequa, Gdynia, 750 bls. wood pulp, 156 tons; Johaneson Wales & Sparre, Inc., Minnequa, Gdynia, 525 bls. wood pulp, 109 tons; N. Y. Trust Co., Hannover, Bremen, 500 bls. sulphite; Castle & Overton, Inc., Hamburg, Hamburg, 2490 bls. wood pulp, 448 tons; Castle & Overton, Inc., Sacandaga, Rotterdam, 280 bls. wood pulp, 56 tons; Gottesman & Co. Inc., Carlsholm, Sweden, 600 bls. sulphate.

WOOD PULP BOARDS

Lagerloef Trading Co., Minnequa, Kotka, 111 bls., 16 tons; ——, Milwaukee, Hamburg, 23 bls., 5 tons.

CAMDEN IMPORTS

WEEK ENDING JULY 16, 1932

——, Minnequa, Kotka, 99 bls. sulphate, 16 tons; ——, Minequa, Kemi, 6450 bls. wood pulp, 1077 tons.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 16, 1932

Castle & Overton, Inc., Minnequa, Wiborg, 690 bls. wood pulp, 137 tons; Lagerloef Trading Co., Minnequa, Wiborg, 3556 bls. sulphite, 649 tons; ——, Minnequa, Kotka, 175 bls. sulphite, 31 tons; Lagerloef Trading Co., Minnequa, Kotka, 161 bls. sulphite, 26 tons; 771 rolls wood pulp boards, 84 tons; 318 bls. wood pulp boards, 49 tons; 1466 bls. mechanical pulp, 286 tons; Lancaster News, Minnequa, Kotka, 148 rolls news print; ——, Minnequa, Kemi, 640 bls. sulphite, 106 tons; Johaneson Wales & Sparre, Inc., Hannover, Hamburg, 674 bls. wood pulp; ——, Hannover, Hamburg, 2 cs. filter paper; F. Weber & Co., Hannover, Hamburg, 10 cs. paper; ——, Hannover, Hamburg, 510 bls. wood pulp; Gottesman & Co. Inc., Carlsholm, Sweden, 500 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING JULY 16, 1932

Gottesman & Co. Inc., Topeka, Norway, 1000 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING JULY 16, 1932

E. Butterworth & Co. Inc., Transylvania, Glasgow, 47 bls. paper stock; G. F. Malcolm, Adriatic, Liverpool, 3 cs. tissue paper; Davies Turner & Co., Adriatic, Liverpool, 11 bls. paper; Castle & Overton, Inc., Minnequa, Wiborg, 521 bls. wood pulp, 103 tons; Lagerloef Trading Co., Minnequa, Wiborg, 695 bls. sulphate, 113 tons; 1248 bls. sulphite, 209 tons; Irving Trust Co., Minnequa, Wiborg, 175 bls. sulphate, 29 tons; Irving Trust Co., Minnequa, Kotka, 275 bls. sulphate, 46 tons; ——, Minnequa, Kotka, 91 rolls news print; ——, Minnequa, Kemi, 1300 bls. sulphate, 217 tons; Gottesman & Co. Inc., Topeka, Norway, 500 bls. wood pulp.

PORTLAND IMPORTS

WEEK ENDING JULY 16, 1932

Gottesman & Co. Inc., Carlsholm, Sweden, 7650 bls. wood pulp.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 18, 1932—Local paper merchants continue to be as optimistic as possible in a market of only moderate activity as for a considerable period. In some lines, demand is expected to be quiet in the warm season, although after a protracted period of less buying, the contrast of "summer dullness" is not so marked. Bonds and ledgers are moving in practically the same volume, with a certain call for material for direct mail advertising. At the office of one large wholesale house handling fine paper it was stated that road salesmen are bringing in inquiries from here and there. Opinion was expressed at the same office that it would be a "fairly decent fall." Some, according to their experience, feel that the market is slightly better.

Wrapping paper is in fair call. Summer specialty dealers continue to sell a rather satisfactory amount of supplies to proprietors of soda fountains and a considerable quantity for use at parks and shore resorts. In some quarters it is reported that the interest in box coverings is increasing slightly, with a certain amount of actual buying. The movement in box board is somewhat restricted, although with some carton manufacturers planning to make new lines of boxes, the demand for boards will possibly be accelerated. Prices remain firm. Paper stock shows no improvement, with any change in value tending downward. Australian wool pouches have been marked down from 1.75 to 1.50 and heavy baling bagging from a range of 1.00 @ 1.25 to .80 @ 1.00.

Gatti Co. in Hands of Receiver

HOBOKEN, N. J., July 18, 1932.—Richard Callahan, as officer of the First National Bank of Hoboken, was appointed receiver of the Gatti Paper Stock Corporation, by Vice Chancellor Fallon in Jersey City.

The Gatti corporation has a large plant at Thirteenth and Monroe streets, another plant at Roxbury, Mass., and selling offices in New York City.

The complaint in the action was filed by Ernest Bodaracco, a creditor. The corporation admitted that it is insolvent and has been losing money for some time. Because of this it has been obliged to suspend operations. The First National Bank is a creditor to the amount of $125,000.

The liabilities of the corporation outside of mortgage loans, are $120,000. Assets amount to $250,000. Milberg and Millberg appeared for the complainant.

Receivers for Eastwood Wire Corp.

For a period longer than most men in business can remember the Eastwood Wire Manufacturing Company stood at the forefront of the industry in the world. Some three years ago Calvin H. Nealley desired to retire.

New interests changed the capital structure and the name of the corporation was changed to the Eastwood Corporation.

Recently it was necessary for Mr. Nealley to again become president and become active in the affairs of the company and incident to a re-construction or re-organization a receivership seemed advisable and the Court of Chancery of New Jersey on Tuesday of last week, July 12, appointed Calvin H. Nealley and George W. Grimm, Jr., as receivers. It is hoped and expected that the company will again become one of the significant factors in our country's industrial life.

100 Tons Kraft Per Day — 58% A. D.
With the Famous Kamyr Wet Machine

Production . . . .

Kraft	up to 100 Tons
Sulphite	up to 80 Tons
Soda	up to 60 Tons
Groundwood	up to 50 Tons

Results . . . . . .

With 1 Press	42% A.D.
With 2 Presses	55% A.D.
With 2 Presses & Predryer.	58% A.D.

Saves . . . . . .

Felt, Wires, Labor, Upkeep, Power, Fibre, Floor Space

G. D. JENSSEN CO.

Chrysler Bldg., N. Y. C. *Sole Agents in U. S. A. for* 1017 White Bldg., SEATTLE

PAPER MACHINERY Ltd.
MONTREAL

1864 1932

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY
BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

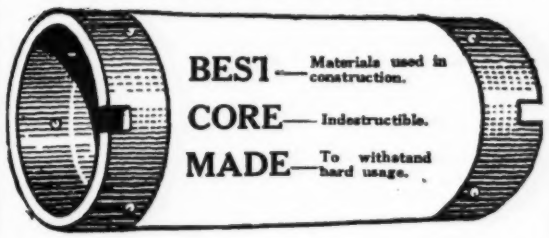
SHIPPING INSURANCE

The Use of

ELIXMAN CORES

protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

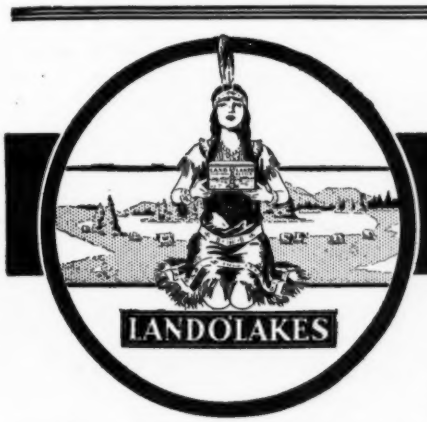
SHIPPING INSURANCE



Your two sources of supply are

Canadian Elixman Company
HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.



LAND O'LAKES CASEIN

High quality Casein made under strict laboratory control. Excellent solubility. Satisfactory viscosity. Write for sample and quotations.

LAND O' LAKES CREAMERIES, INC., MINNEAPOLIS, MINN.
New York City - Chicago - Boston - Philadelphia - Pittsburgh - Syracuse

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, July 20, 1932.

Trading in the local paper market was only moderately active during the past week. Demand for the various standard grades of paper is light at present, due mainly to the usual mid-summer lull. Sales forces of the leading paper organizations usually relax their efforts to some extent at this time of the year.

Production of news print paper in the United States and Canada is being maintained in sufficient volume to take care of current requirements. Stocks at the mills are ample. Negotiations for consolidating the leading interests in Canada are proceeding slowly. The price situation remains unchanged.

The paper board market is marking time. Demand for box board is fairly persistent at times, although not sustained. Prices are irregular. The fine paper market is exhibiting a fairly strong undertone. Tissues are going forward at a normal pace. The coarse paper market is steady and kraft wrapping paper prices are well maintained.

Mechanical Pulp

Steadiness prevails in the ground wood market, although demand for both domestic and imported mechanical pulp is rather listless at present. However, production both at home and abroad continues to be curtailed and the statistical position of the industry is considered sound. Prices are generally holding to schedule.

Chemical Pulp

The chemical pulp market is displaying a firm undertone, due to some extent to the continuation of the pulp mill workers strike in Sweden. Although demand for the various grades of imported and domestic chemical pulp is light, offerings are limited. Prices are generally holding to formerly quoted levels.

Old Rope and Bagging

Conditions in the old rope market are fairly satisfactory. While demand for both domestic and imported old manila rope is light, offerings are not excessive, and prices are generally well maintained. Small mixed rope is comparatively quiet. Some improvement was noticed in the bagging market. Roofing bagging is steady, while gunny and scrap are fairly active.

Rags

The position of the domestic rag market is practically unchanged. Demand for most of the grades of cotton cuttings is listless. Roofing rags, however, are in fairly persistent request. Domestic rag prices are strictly nominal. The imported rag market is still affected by the uncertainties of foreign exchange.

Waste Paper

Due to the recent heavy export movement to England and increased demand from the board mills, the lower grades of paper stock are firmer. No. 1 mixed paper is now quoted at from .15 to .20, while strictly folded news is selling at from .35 to .40. The higher grades of waste paper are quiet. Book stock and soft white shavings are easier.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Sales of the various grades of twine are holding up well and compare favorably with the volume transacted in the corresponding period of the past year. Prices are well maintained, in most instances, although competition continues keen.

Unique Chinese Work

A copy of the Chieh Tzu Yuan Hua Chuan, a work on drawing in four sections, compiled and engraved in the latter part of the 17th century by Li Yu (better known by the designation Li Li-weng), may be inspected at the offices of Royal S. Kellogg, secretary of the News Print Service Bureau, 342 Madison avenue, New York. The originals from which the drawings were carved are credited usually to Wang An-chieh and others of the same period. It is richly illustrative of a progressive course of study in various uses of the brush stroke in Chinese painting. The work is bound in seventeen small volumes, enclosed in four blue cloth cases; one for each of the four sections of the work.

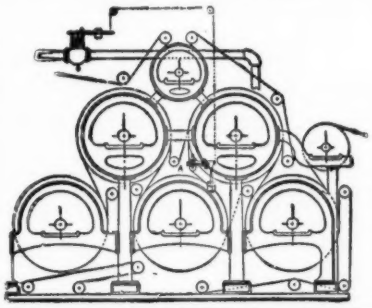
The first section, in five volumes, divided into five chapters, is on Landscape drawing. The second section, in four volumes, divided into what amounts to eight chapters, treats of the methods of drawing Orchidaceous plants, Bamboo, Plum and Chrysanthemums. The third section in four volumes, divided into what amounts to four chapters, treats of the methods of drawing Flowers, Birds, Insects, etc. (It is bound in the "butterfly" style in order to allow a block for each picture). The fourth section, in four volumes, in four chapters, treats of the methods of drawing Portraits and the Human Figure.

Nancy Lee Swann, acting curator of the Gest Chinese Research Library, McGill University, Montreal, Que., expresses the view that this copy is the edition of 1818 A. D. Whether it is the original copy of that edition, or a later reprint is not clear. A comparative study of the paper used would be perhaps the best clue for a date.

Sheriff Takes Sitka Pulp Plant

NORTH BEND, Ore., July 16—The Sitka Spruce Pulp and Paper Company affairs are in the hands of the Coos county sheriff, after two months of hope that the $1,500,000 industry might be continued and liens and other credits against it would be satisfied. More that 100 liens were served recently by laborers and others who might have claims coming under that head. The pulp mill has an adjunct, a sawmill which had shipped many thousands of feet of lumber to support the pulp production and keep it going. Heavy indebtedness caused the concern to close a number of weeks ago.

The Pickles Drying Regulator



WE ARE SAFE IN OUR PROPOSITION

YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Gulf, Newgulf and Long Point, Texas

The B Q-DC. **QUALITY PULPS**

HAFSLUND NORWAY — **"HAFSLUND BEAR" Bleached Sulphite**

F:HAGA — **"FORSHAGA" Bleached Sulphite**

KRAFT HURUM NORWAY SPECIAL — **"HURUM SPECIAL" Extra Strong Kraft**

KOOS BAC — **"BAMBLE" Extra Strong Kraft**

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

Mill Cogs

ON SHORTEST POSSIBLE NOTICE

We make all kinds of Mill Cogs and have special facilities that will be of great service to you. We make a specialty of "ready dressed" cogs which are

READY TO RUN

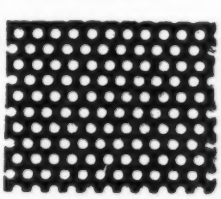
the moment driven and keyed. Write at once for circular "G" and instruction sheets free.

THE N. P. BOWSHER CO.
South Bend, Ind.
Established 1882

Perforated Metal Screens

For Pulp and Paper Mills

STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.



".065" Round

CHARLES MUNDT & SONS
63-65 FAIRMONT AVE. JERSEY CITY, N. J.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, July 20, 1932.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Some improvement was noticed in the bleaching powder market. The contract movement is well up to average. Prices are steady and unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is easier. Domestic standard ground is now quoted at 4¾ cents and finely ground at 6 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. The contract movement is normal. Solid caustic soda is still quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is irregular, due to the uncertainty of foreign exchange. Demand is moderate. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. The contract movement is fairly satisfactory. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market continues steady and unchanged. The grades of gum rosin used in the paper mills are quoted at from $3.30 to $3.50 per 280 pounds, in barrels, at works. Wood rosin is selling at $2.50 per 280 pounds, in car lots, or over, at works.

SALT CAKE.—Paper mill demand for salt cake is moderately active. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is rather quiet at present. Contract shipments are moving in fair volume for the time of year. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1; in bags, $1.25; and in barrels, $1.38.

STARCH.—Trading in the starch market is fairly active. Shipments against contract are going forward with regularity. Special paper making starch is still quoted at $2.44 per 100 pounds, in bags; and $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Conditions in the sulphate of alumina market are generally satisfactory. Prices are unchanged. Commercial grades are selling at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was routine. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	5.00	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.65	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.50	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middies	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¾	@	—

(Delivered New York)

News, per ton—			
Roll, contract	53.00	@	—
Rolls, spot	53.00	@	—
Sheets	58.00	@	—
Side Runs	38.00	@	42.00
Kraft—			
No. 1 Domestic	4.75	@	6.00
No. 2 Domestic	3.25	@	4.00
Southern	3.25	@	4.00
Imported	3.50	@	4.30
Boards—per ton—			
News	24.00	@	25.00
Straw	34.50	@	45.00
Chip	24.00	@	25.00
Binders' Boards	62.00	@	70.00
Standard 85 Test Liner	30.00	@	32.50
Sgl. Mla. Lt. Chip	35.00	@	37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	19.00	@	21.00
Dry	21.00	@	22.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.10	@	2.90
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.50	@	1.65
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.50	@	1.65
No. 2 Kraft	1.35	@	1.40
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	2.10	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.50	@	1.65
Mitscherlich	2.40	@	2.55
Kraft (Domestic)	1.50	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.25	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.00	@	4.25
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.50	@	1.75
Washables	1.15	@	1.40
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.40	@	3.50
Light Flannelettes	3.25	@	3.50
Unbleached Cuttings	5.50	@	6.00
New White Cuttings	4.25	@	4.50
New Light Oxfords	3.75	@	4.00
New Light Prints	2.00	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	4.00	@	4.25
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.90	@	2.10
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.00	@	1.10
Domestic	1.15	@	1.25
Wool Tares, light	.80	@	.85
Wool Tares, heavy	.80	@	.85
Bright Bagging	.75	@	.80
Small Mixed Rope	.80	@	.90
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.75
New Burlap Cut	1.65	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.60	@	1.70
Ordinary Hard White	1.30	@	1.40
Hard White No. 2	1.30	@	1.40
Soft White No. 1	1.25	@	1.35
Flat Stock—			
Stitchless	.50	@	.60
Overissue Mag	.50	@	.60
Solid Flat Book	.45	@	.50
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.60	@	.70
News—			
No. 1 White News	1.15	@	1.20
Strictly Overissue	.35	@	.40
Strictly Folded	.25	@	.30
No. 1 Mixed Paper	.15	@	.20

GEORGE F. HARDY

Consulting Engineer

305-309 Broadway, New York City, N. Y.

Member—Am. Soc. C.E.—Am. Soc. M.E.—Eng. Inst. Can.

Consultation	Paper and Pulp Mills
Reports	Hydro-Electric and
Valuations	Steam Power Plants
Estimates	Plans and Specifications

P M C

SUPERIOR

ROSIN SIZE

SATIN WHITE

INDUSTRIAL CHEMICALS

Dependable, uniform paper-making chemicals can only be made by quantity production under strict chemical control.

PAPER MAKERS CHEMICAL CORPORATION

KALAMAZOO, MICHIGAN

17 Large Plants

MEYERS-MESCO

CONSISTENCY REGULATORS

ACTUALLY **DO** CONTROL

STOCK CONSISTENCY

for

MUNROE PAPER CORP., Lawrence, Mass.

AND OTHER LEADING COMPANIES

MERRITT ENGINEERING & SALES CO.

LOCKPORT, N. Y.

The HARRINGTON & KING PERFORATING CO.

5652 Fillmore St.
Chicago, Ill.

New York Office
114 Liberty St.

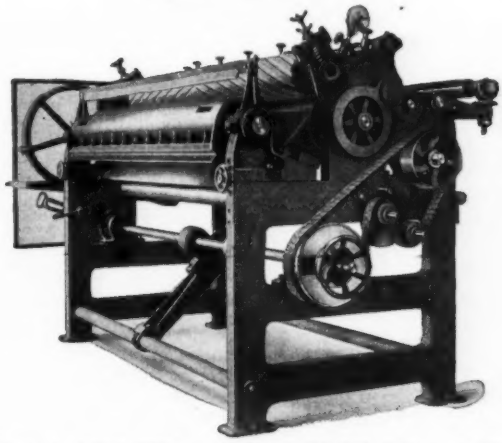
PERFORATED METALS

Screens of All Metals

For use in Pulp and Paper Mills

MODEL 28

ROLLER BEARING CUTTER



HAMBLET MACHINE CO.

LAWRENCE, MASS.

MAKERS OF

SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS, CUTTER KNIVES, PATENT TOP SLITTERS.

Hardy S. Ferguson & Co.

Consulting Engineers

200 Fifth Avenue, New York City

Hardy S. Ferguson.....Member A.S.C.E., A.S.M.E., E.I.C.
Moses H. Teaze .....Member A.S.M.E., E.I.C., A.S.C.E.
J. Wallace Tower .....Member A.S.C.E., A.S.M.E.

Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of

Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants
Dams and other Hydraulic Structures.

GIANT

RAGS — BURLAP
BAGGING — ROPE

JUTE BUTTS, MAGAZINES, CATALOGS OLD PAPERS, THREAD WASTE AND ALL GRADES OF RAGS CUT QUICKLY AND EFFICIENTLY WITH THE

TAYLOR, STILES & COMPANY
GIANT
REG. U.S. PAT. OFF.
RIEGELSVILLE, N. J. U.S.A.

This is the GIANT 2A CUTTER WITH A CAPACITY OF 3000 lbs. PER HOUR
GIANT RAG CUTTERS HAVE CAPACITIES OF FROM 1 to 5 tons per hour.

THE STANDARD OF THE WORLD FOR 60 YEARS

TAYLOR, STILES & COMPANY

RIEGELSVILLE, N. J.

CANADIAN REPRESENTATIVES

Waterous Engine Works Company, Ltd., Brantford, Ont., Canada

SOLE AGENTS FOR EUROPE

A. J. Marx, 133-139 Finsbury Pavement, London, E. C.

Twines

(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Pl—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¾
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.30	@	.53¾
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.37½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 2 Soft White	1.20	@	1.35
Ledger & Writings	.55	@	.65
Solid Books	.35	@	.50
Blanks	1.00	@	1.15
Krafts	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.30	@	.35
No. 2	.20	@	.25
Mixed Papers—			
No. 1	.15	@	.25
No. 2	.10	@	.15
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F	.04¾	@	.07
Book, S. S. & C	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	22.00	@	25.00
Chip Board	21.00	@	23.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.80	@	1.90
No. 2 Hard White	1.60	@	1.70
No. 1 Soft White	1.50	@	1.65
No. 2 Soft White	1.30	@	1.45
No. 1 Mixed	.40	@	.50
No. 2 Mixed	.35	@	.40
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.00	@	1.15
No. 1 Old Manila	.90	@	1.00
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.85	@	.95
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.35	@	.40
Old Newspaper	.20	@	.25

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¾	@	.03½
(F. o. b. Boston)			
Southern Kraft	.03¼	@	.03½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.35
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.10	@	1.20
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixed String	—	@	.32½
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	—	@	.79
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.60	@	.75
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	.65
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.80	@	1.00
Paper Mill Bagging	.60	@	.70
Bagging No. 2	.20	@	.25
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.04	@	.04½
New White No. 2	.03	@	.03¾
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¾	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags

(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.85
Old Linsey Garments	.55	@	.65

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper

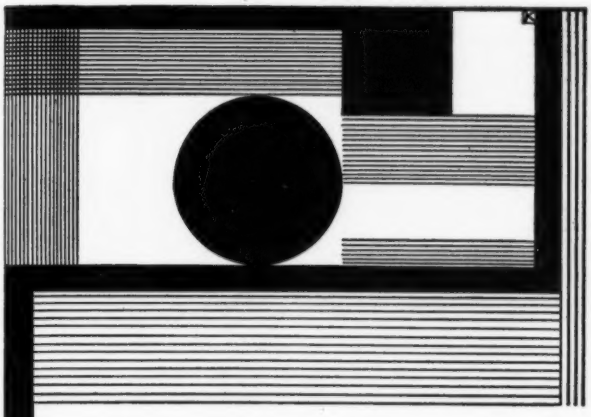
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¾



To the
PAPER MILL
SUPERINTENDENT

It is sound economy to generalize in G D C Colors.

Consult our representative — he can offer suggestions.

There is a G D C color for e v e r y specialized need.

Current colors are carried in stock at all our offices.

GDC

GENERAL DYESTUFF CORPORATION

230 Fifth Ave., New York, N. Y.

PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

SIXTY FIRST YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President: J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 10 East 39th Street, New York
Chicago Office: 123 West Madison St.

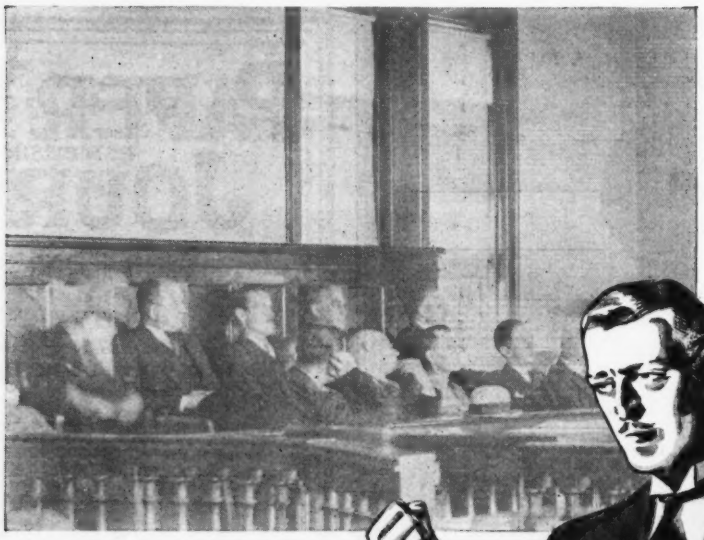
TABLE OF CONTENTS

Copyright, 1932, by the Lockwood Trade Journal Co., Inc.

Spruce Falls Earns Million Net 9
Development of China Clay Deposits 9
Fox River Valley Mill Activities 10
Suede Finish Paper Popular 10
Paper Chemistry Institute Expands 10
Boston Market Displays More Activity 11
I. P. Co. Reports Larger Sales 11
Board and Paper Products Co. Formed 11
Fraser Co.'s Reorganization Plan 12
Dalhousie Operations Curtailed 12
Union Trust Makes Distribution 12
Union Bag Strike Continues 12
Manufacturing Chemists Meet 13
Hamilton Comparatively Prosperous 14
New Sample Book of Gummed Papers 14
Japanese Paper Production 14
Holyoke to Welcome TAPPI 15
Segal Paper Co. Files Petition 16
Reynolds & Reynolds Add New Line 16
Paper Directory of the World 16
New York Trade Jottings 17
Construction News 18
New Companies 20
Kurt Wandel Resigns 20
Editorial **22**
Formation and Folding Endurance 23
American Writing Report 23
News Print Production for June 23
Technical Section
Pitch Problems in Sulphite Mills 25
Handbook of Chemical Microscopy 27
Control of Relative Humidity 27
Estimating Stability of Paper by Heating 28
Index Technical Section Vol. 94 31
Cost Section **37**
Bids for Government Paper 41
Imports of Paper and Paper Stock 43
New York Market Review **46**
Miscellaneous Markets **48**
Market Quotations **48**

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements, 51-52



Do ONE THING . . AND DO IT *WELL*

For a really important case, you retain, of course, the best lawyer you can find. You take no chances. You turn to a specialist . . . the man who does that one thing, *well.*

Your purchases of a chemical are important. We pioneered the manufacture of Liquid Chlorine. We make this one product and no other. The specialist in Liquid Chlorine is EBG.

ELECTRO BLEACHING GAS CO.

Pioneer Manufacturers of Liquid Chlorine

Main Office: 9 E. 41st St., New York, N. Y.

Plant: Niagara Falls, N. Y.

EBG

Liquid Chlorine